DOCUMENT RESUME

ED 061 655 08 EA 004 284

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TITLE Coordination of Organic Curriculum Development in the Public Schools of Duluth, Minnesota. Final Report.
INSTITUTION Duluth Public Schools, Minn.
SPONS AGENCY National Center for Educational Research and Development (DHEW/OE), Washington, D.C.
BUREAU NO BR-8-0152
PUB DATE Feb 72
GRANT OEG-0-8-080152-2686(085)
NOTE 78p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Behavioral Objectives; Coordination; Curriculum Design; *Curriculum Development; Educational Objectives; Evaluation Techniques; Humanities Instruction; Job Skills; Program Administration; Secondary Education; Simulation; *Staff Improvement; *Student Centered Curriculum; Systems Approach; *Vocational Education
IDENTIFIERS Duluth; *Educational System Seventies; ES 70s; Learning Packages; Minnesota

ABSTRACT

This document describes the efforts of program administrators to implement an organic curriculum in the Duluth, Minnesota, secondary schools. Major activities included staff development activities and inservice training students in a core of job skills. Organic curriculum is a learner-rather than a teacher-centered course of study utilizing learning packages specifying behavioral objectives. Appendixes present a variety of project related materials. (Page 21 may reproduce poorly.) (RA)

OE-NCERD BR 8-0152 PA 08

EA

ED 061655

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Independent School District No. 709
Duluth Public Schools
Duluth, Minnesota 55802

COORDINATION OF ORGANIC CURRICULUM DEVELOPMENT IN THE PUBLIC SCHOOLS OF DULUTH, MINNESOTA

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U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education

National Center for Educational Research and Development
(Regional Research Program)

ED 004 284

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
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INTRODUCTION

At a time when many of the established institutions of the nation have been challenged to change or give way, it has not been surprising to find many school districts engaging in critical assessment of their operations. They have been looking for or instituting those changes they believe will make their schools more successful and effective.

During the last several years, the great ferment in American education has yielded a rich array of innovative practices, each designed to deal with one or another aspect of the numerous crises besetting our schools. In almost every case the ultimate objective has been to improve the learning situation for the individual youngster so that his school experience will be effective, relevant to his needs and aspirations, and will make him a useful, functioning adult able to cope with, contribute to, and benefit from a fast changing society.

To this end, research and demonstration projects in education have been carried out at every level of the educational enterprise, public and private, in varying degrees of complexity and size.

On May 11-12, 1967, at Nova High School, Ft. Lauderdale, Florida, Mr. David Bushnell and Dr. Robert Morgan of the U.S. Office of Education met with superintendents of fifteen school systems. The purpose of the meeting was to present a paper called "Designing an Organic Curriculum" and to establish a network of the fifteen schools which would plan and develop the organic curriculum. At that time each district superintendent agreed to employ a local program coordinator who would be assigned fulltime to this program. It was also agreed that the U.S. Office of Education would provide funds to pay the fifteen local program coordinators beginning in September, 1967. This program came to be known as E.S. '70 (Educational System for the Seventies).

The overall objective for the organic curriculum was to redefine educational goals and overhaul the educational process. Therefore, each E.S. '70 coordinator was to work on the following:

1. Delimit the general purposes of the organic curriculum to the local district.

These general purposes are as follows:

a. Integrate academic and vocational learning by appropriately employing vocational preparation as one of the principal vehicles for the inculcation of basic skill learning. In this way learning could be made more palatable to many students who otherwise have difficulty seeing the value of a general education.

b. Expose the student to an understanding of the "real world" through a series of experiences which capitalize on the desire of youth to investigate for himself.

c. Train the student in a core of generalizable skills related to a cluster of occupations rather than just those related to one specialized occupation.

d. Orient students to the attitudes and habits which go with successful job performance and successful living.

e. Provide a background for the prospective worker by helping him to understand how he fits within the economic and civic institutions of our country.

f. Make students aware that learning is life-oriented and need not, indeed must not, stop with his exit from formal education.

g. Help students cope with a changing world of work through developing career strategies which can lead to an adequate level of income and responsibility.

h. Create within the student a sense of self-reliance and awareness which leads him to seek out appropriate careers with realistic aspiration levels.

2. Deal with a variety of complex questions which may arise from radical remodeling of secondary curriculum.

3. Develop a tolerance for turbulence while establishing a climate for change.

4. Develop an integrated comprehensive curriculum for grades 9-12.

5. Act as an agent for communication.

6. Evaluate each step of the program.

Modification of the above objectives to fit each local district was to be determined by the administrative personnel in the district.

Adjustments

As the network grew to 20 schools certain inherent weaknesses within the initial structure were identified and a redefinition of goals was undertaken through the coordinators' organization. The initial goals were revised and redefined as follows:

> Learning is an individual process. Different students approach the teaching-learning situation with different needs, goals, strengths, limits and experiences. A learner-responsive instructional system provides for each learner the personal opportunity to participate in:
>
> 1. The setting of his own short, intermediate and long-range goals.
> 2. The design of those educational experiences through which he will achieve success.
> 3. The selection of learning methods and materials to be used without regard to subject matter boundaries.
> 4. The budgeting of his time, within broad limits, in order to learn at a rate which is appropriate for him.
> 5. The establishment of levels of performance to be reached which specify satisfactory fulfillment of curricular objectives.

The E.S. '70 system is designed to develop learners who have the necessary skills and knowledge which prepare them to function as effective citizens in the social, political and economic spheres of today's and tomorrow's world.

The Setting for the Project

The city of Duluth is situated on the western shore of Lake Superior. It was founded as a traditional meeting ground of the Sioux and Chippewa Indians, and the later site of trading posts of the French voyageurs and English and American traders. Through the years since its founding, Duluth has relied upon lake shipping and its attendant transportation network for its very existence.

The Duluth schools have a total enrollment of approximately 24,500 students in thirty-two elementary schools, nine secondary schools and a post-secondary vocational-technical school. The elementary schools range in size from approximately 150 to 700. The secondary schools range in size from 700 to 1,700.

For the purposes of the E.S. '70 Project, the decision, was made quite early to concentrate developmental aspects at Central High School. The reasons for this were many but the most outstanding was the fact that at the inception of the project plans for the construction of a new Central High were underway. Also, Central High School has the largest concentration of low income students when compared with other high schools in the city of Duluth.

Format for This Report

Inasmuch as the whole effort of the development of the E.S. '70 Project was action oriented this report must be descriptive in nature. In the procedures section elements of the E.S. '70 program will be outlined. In the results section a description of what was done in Duluth in relation to the elements of E.S. '70 will be given. Finally, in the conclusions section our point of view concerning the overall effect of E.S. '70 on the Duluth schools and the total network schools will be presented.

PROCEDURES

The task before the groups and agencies involved in the E.S. '70 Project was to develop for the schools a relevant curriculum for the modern American youth that is keyed to his needs, his aspirations and to the adult roles which he may play. The desired educational program should afford each student a variety of options for his future--a job, further vocational training, college entry, or a combined work-study program. It should prepare him to cope more effectively with man-made environments. While grappling with the outer world, he must derive an inner feeling of satisfaction and control over his own destiny.

The task was also to redesign or modify and test the organization of the educational process and the educational system so that it is possible to implement this curriculum most effectively for the individual student, and most economically for the society.

Modifying the educational process has long been stymied by the difficulties of dealing systematically with the numerous interacting factors involved in the educational process. The availability of new practical technological aids and the sophisticated development of the new tools of systems analysis and systems management, have now made it possible to transform the educational process in a systematic and logical fashion so that every educator's dream of doing a good job for every child becomes practical and within reach.

It was within the context of a systems approach that the complex E.S. '70 program was undertaken. E.S. '70 was a research and demonstration program. Participants at each level were engaged in specific activities that were directly related to the total design of the program. The heart of the program was the creation of a new curriculum. What should it be? How can it be formulated? What must we do about organizing and managing schools to make it possible for teachers and students to learn in ways that are better than before? What should this new individualized curriculum make possible?

E.S. '70 as a research and demonstration program, represented a broad scope of activity that cuts across every aspect of education. It involved the development of an improved secondary school curriculum designed to present individual school districts with a wide variety of alternatives in providing their own secondary school students with an individualized and relevant secondary education at a feasible cost.

Four main categories of activity comprised the substance of the effort:

A. Staff Development

1. Professional pre-service
2. Professional in-service
3. Non-educational professional utilization
4. Sub-professionals

B. Instructional Management and Career Guidance

1. Educational objectives
2. Cluster arrangements of vocational careers
3. Curriculum development
4. Instructional material
5. Instructional and learning media
6. Modular scheduling
7. Individualized instruction
8. Guidance progress and procedures
9. Reduction of failures

C. School Management

1. Staff utilization
2. Information handling
3. Increased efficiency in communication
4. Simulated decision-making in on-line situations
5. Scheduling progress, and accounting for pupils
6. Budgeting, fiscal accounting, personnel records
7. Modification of existing plant
8. New structures

D. Evaluation

1. Student assessment
2. School accreditation
3. Use of data processing in evaluation
4. Student certification
5. General evaluation of educational progress

The elements of the E.S. '70 program listed above were broken into necessary activities and arranged on a PERT Chart (Program Evaluation and Review Technique--see Appendix A).

RESULTS

As was mentioned previously this section will be divided along the lines of the elements of the E.S. '70 program outlined in the procedures section. There is however, one area which transcends the elements of E.S. '70. This area is related to the first objective of the E.S. '70 coordinator's function: Delimit the general purposes of the organic curriculum to the local district. For the purposes of this paper this area will be called communication.

COMMUNICATION

One of the immediate problems which confronted the local school district was the formulation of methodology for information sharing with not only members of the public school staff, but also with lay members of the community and staff members of the area institutions of higher education. The concept of the organic curriculum and the development of the E.S. '70 Project were of such a nature that implications for change in education were not readily apparent in typical types of presentations to the groups mentioned above. On the other hand, it was felt that it would be wise not to underestimate the sophistication of the people who must be involved in this massive change process.

In order to get a start on this important element of the project's development, a tape-slide presentation was developed. The script for the presentation had, as its foundation, the speech presented by David Bushnell to the Aerospace Education Foundation in September, 1967. This speech was modified to the extent that it can tell the story from the Duluth Schools' point of view. A copy of the script for this presentation is attached (Appendix B).

During the course of the E.S. '70 Project in Duluth the presentation was made to the following:

1. Secondary Schools Administrative Staff
2. Education Department of the University of Minnesota, Duluth
3. Duluth Optimist Club
4. Duluth Saturday Lunch Club
5. Central Office Administrative Staff

6. Phi Delta Kappa Branch at the University of Minnesota, Minneapolis

7. State Audio-Visual Association Convention

8. Duluth Model City Administrative Staff

9. Duluth PTA Council

10. Staff of the Minnesota Department of Education

11. Numerous college and university classes

In September of 1968, a statewide conference on the E.S. '70 Project was organized and held in Duluth. The purpose of this conference was to discuss relationships between the Duluth Schools, higher education in our state, and the State Department of Education as they pertain to the E.S. '70 Project. In attendance at the conference were such educational leaders as Dr. Robert Keller, Dean of the College of Education at the University of Minnesota; Duane Mattheis, Commissioner of Education in Minnesota; Richard Bye, State Board of Education Chairman; Dr. Henry Borow, University of Minnesota; Dr. Ray Price, University of Minnesota and Dr. Robert Morgan, Florida State University.

Three things were accomplished at this meeting: (1) The people in attendance were given a very cogent description of the activities taking place in the E.S. '70 Project across the nation; (2) An overview of the activities taking place in the Duluth Schools which are related to the E.S. '70 Project was given; (3) There was a healthy discussion of possible cooperative efforts between the Duluth Schools, higher education and the State Department of Education. Attached to this report is a copy of the agenda for that meeting and a copy of the activities in Duluth summary sheet which was passed out at the conference. (Appendix C.)

Finally, in the area of communications, perhaps the most significant development was the planning and carrying out of an actual demonstration in individualized instruction, as developed in Duluth, at the National Laboratory for the Advancement of Education sponsored by the Aerospace Education Foundation in November of 1968. A concise description of this demonstration is attached as Appendix D.

STAFF DEVELOPMENT

The most important area for any large scale change effort in a school system is the area of staff development. In order to

promote the development of the organic curriculum and further the goals of the total E.S. '70 Project, several areas of activity were carried out to help staff development.

During the summer of 1968 a teacher training institute for teachers from all participating schools in E.S. '70 was held in Duluth. This institute, conducted in conjunction with the University of Minnesota, Duluth, had as its overall goal the training of teachers to participate in applied research activities for assessing the effectiveness of a behavioral-based high school curriculum integrating vocational and academic components. To accomplish this, the activities of the institute focused on the following areas of instruction:

--Systems approach to instruction (including behavioral objectives)

--Educational simulation

--Group processes

--Vocational instruction

--Humanities

--Techniques of evaluation

Fifty teachers from the participating E.S. '70 schools took part in this teacher training institute. A separate final report of this project has been filed with the Office of Education. Attached is a copy of the original proposal which was carried out. (Appendix E.)

Another activity which took place in the area of staff development during the summer of 1968 was a workshop conducted for thirty-five secondary teachers from the Duluth Schools in the area of achievement motivation. The workshop was carried out by two professors from the University of Minnesota, Duluth, and the College of St. Scholastica, Dr. Thomas Boman and Dr. Phillip Richards. The general purpose of this workshop was to train teachers in the methodology of achievement motivation developed by David McClelland in the Achievement Motivation Development Project at the Harvard Graduate School of Education.

In the area of staff training, we have also developed a paper to be used with staff, not only locally, but in other network schools as well. This paper entitled A Comparison of Traditional and E.S. '70 Schools Today and Tomorrow presents examples of what

some critics say of the traditional high school and what some educators hope for in an E.S. '70 high school. This paper was presented at the E.S. '70 Conference held in San Mateo, California, in May of 1968. The paper was well received by conference participants and since then Duluth has furnished copies of this paper to numerous schools and colleges for their use in training activities. A copy of this paper is attached as Appendix F.

Probably the most significant development in the staff development area to occur in the Duluth Public Schools was the negotiated in-service training program carried out between the Duluth Teachers Association (AFT) and the Board of Education of the City of Duluth. This program, which became reality in 1969, establishes a teacher directed in-service training operation. As stated in the Memorandum of Understanding between the Association and the Board of Education:

> This program presents an opportunity to involve classroom teachers in the development of the curriculum and in the methods for its implementation. Through the Professional Growth Committee teachers have a voice in their own professional destiny. It also provides a channel through which they can encourage those programs and procedures they find practical and workable, and gives them an avenue to present ideas and methods they find are successful in their own classes.
>
> Another consideration involves continuity and quality. Duluth's participation in E.S. '70 provides a link with other school districts that can aid us in developing the kind of quality education we all desire. The E.S. '70 Project also has stated goals which offer positive direction for a professional staff development program described in this paper. It is important that those charged with the operation of the program do not use the shot gun technique and send the training program off in many different directions.

This negotiated understanding between the Board and the teachers has done two very distinct things. First, it has provided in-service training activities for over 80% of the teachers and administrators in the Duluth Schools. Secondly, it was the basis for the development of a Title III project (which has been funded) called A Proposal for Change which builds on the negotiated agreement. This project has as its two main goals the following:

> To create within the Duluth Public Schools a "climate" which will facilitate the lasting change necessary to meet the critical needs of the school district.

To create a quality educational process in our schools, based on the beginnings that have been made, so the school system is better able to meet the critical needs of urban education.

From the data collected in surveying the Duluth professional staff, the In-service Committee, established by the negotiations, made the decision to initiate the following courses:

1. Research Utilizing Problem Solving (RUPS)

   a. Over 710 staff members have taken this course.

2. Interpersonal Communication

   a. Over 75 teachers have taken this course.

3. Audio-Visual -- a program developed within the school system which has expanded to four different courses with different degrees of skills needed.

   a. Over 200 have participated in these classes.

4. Drugs-classes that are involved mainly in values and self concept

5. Elementary Art -- presently in operation with 100 participants

6. Indian Education -- developed by the Duluth Indian Education Committee

7. Intensified Psychological Services

In addition to the listed workshops, many teachers have taken advantage of the opportunity to do work in the areas of publication and independent study.

INSTRUCTIONAL MANAGEMENT AND CAREER GUIDANCE

As a direct result of Duluth's participation in the E.S. '70 Project several areas have either been initiated or expanded in the field of instructional management and career guidance. These are described below:

Individualized Instructional Programs

For the past several years the Duluth Schools have had as a major priority the development of individualized instructional

programs in a number of our schools. The major components of the individualized instructional program in Duluth consist of the development of "learning packages" based on specific behavioral objectives, wide use of a variety of instructional resources (both software and hardware), a range of learning strategies for individual students based on their own needs, interests and capabilities, and intensive in-service training with staff to implement the program. The individualized instructional program developed in Duluth had become a model used by other members of the E.S. '70 network of schools, as well as other schools around the nation. We were able to demonstrate our program at the National Laboratory for the Advancement of Education sponsored by the Aerospace Education Foundation in Washington, D.C. in the fall of 1968. We were, at that time, awarded the Foundation's Medal of Achievement for our efforts in individualized instruction.

Computer Usage

As a result of our involvement in the E.S. '70 effort we have been trying to develop new ways to make use of the computer in our individualized instructional program. We have not been particularly interested in computer-assisted instruction, but have concentrated our efforts on finding ways for a computer to help us manage the individualized learning environment.

Youth-Tutor-Youth

Besides the typical Distributive Education program and the Neighborhood Youth Corp programs, we have developed a program for secondary students in which they spend a portion of their school day working as tutors in elementary schools.

Cinematics

A course of study in English for all 10th graders at Central High School has been established which uses film as its basic instructional resource. While the course is directed at understanding the film as an art form, it also has as a basic premise the assumption that film is also a means of understanding social commentary. It also takes into account the fact that our society is moving more and more to the non-pring media as a means of communication.

Economic Education Curriculum Development Project

For the past several years, with support from the Hill Family Foundation, a curriculum development committee consisting of Duluth teachers and administrators has been developing a catalog of specific performance objectives in economics which could be

used as the basis for "learning packages" for an individualized instructional program in grades K-12. The catalog of objectives has been completed and existing learning activities and resources have been matched with the objectives. This document is to be published by the Joint Committee on Economic Education in New York City.

Inter-Nation Simulation

The Duluth Schools have experimented with several learning games as an instructional resource. The one outstanding simulation exercise that has been used the most is Inter-Nation Simulation. The game is currently being used in many of our individualized projects. During the summer of 1969 one entire course in the social studies area for secondary students was based on this game. Approximately 90 students participated in the course, and an evaluation of what happened during the course of that summer seems to indicate that this is a superior method of instruction.

SCHOOL MANAGEMENT

During the course of Duluth's involvement in the E.S. '70 Project a bond issue was passed and the design and construction of a new high school was undertaken. Basically the school was designed for a flexible modular approach to instruction, with proper facilities for large group, small group and individual instruction. Each department will have independent study areas and small group instruction rooms as well as its own Instructional Media Center. The school was opened in the fall of 1971.

Probably the most important activity in the area of school management as far as E.S. '70 was concerned was the planning and carrying out of a workshop for principals from the E.S. '70 network of schools in the summer of 1969. Participating in the workshop were 28 principals and other school personnel from 18 of the E.S. '70 network of schools. During the two-week period the participants were able to cover a wide range of content to assist them in implementing innovative programs in their own schools. The content covered the following areas: The E.S. '70 Project and the "organic curriculum"; developing performance objectives and achievement motivation; student involvement models; systems analysis and other problem-solving techniques; management information systems; and evaluative techniques. This content was provided by several experts, including Dr. James Popham, Dr. Walter Foley, Dr. Thorwald Esbensen, Dr. Robert Morgan, Dr. Donald Miller, and visitors from the U.S. Office of Education. A copy of the two-week agenda and a list of participants is attached (Appendix G).

While it is true that we were interested in providing the participants to this workshop with the opportunity to garner new information and ideas, this was not the only objective of the workshop or, for that matter, this entire project. The five objectives that were set for this project were stated as follows:

1. Develop, on the part of the principals, a closer identity with the E.S. '70 Project.

2. Develop, in the principals, new techniques and skills that they can use to implement programs leading to the overall goals of the E.S. '70 Project.

3. Develop close personal and organizational relationships between the E.S. '70 principals.

4. Have the principals complete some work that would be useful to them in their own schools as they begin operation in the fall.

5. Develop a mechanism for future collaborative efforts between the principals.

A review of the data obtained from the participants and observers involved in this workshop would seem to indicate that the five objectives have been met. Further elaboration on this data was contained in the final technical report to O.E. Of particular interest, in relation to the above objectives, is the fact that the E.S. '70 principals organized themselves, formed a steering committee, and worked out position statements as to the role of the E.S. '70 Project.

EVALUATION

The Duluth Schools are currently participating with the American Institutes for Research in a longitudinal study of demonstration education programs. The American Institutes for Research (A.I.R.), under contract to the U.S.O.E. Office of Program Planning and Evaluation, is conducting a longitudinal study of the effects on student achievement and motivation of highly intensive, innovative school programs. It is hoped that educational efforts which improve student performance will be discovered, documented, and used in the design of new educational programs across the nation.

Participating school districts are playing a major role in the data collection phase of this study. School districts are administering tests to all students in particular grade levels in those schools included in the study. Grade levels differ from

school to school depending upon the sample which is agreed upon in the first years of the study. The Comprehensive Tests of Basic Skills (for grades 3-12), or the California Test of Mental Maturity, Short Form (for grades 1 and 2) are being employed where appropriate to the age/grade levels.

In addition to test results, data is being collected on student and teacher backgrounds and school policies by the use of questionnaires produced by A.I.R. and approved by U.S.O.E. Information on program content is being collected by A.I.R. personnel in meetings with appropriate school personnel and interviews with school principals. The schools in Duluth participating in this project are those schools which have had significant program impact from the E.S. '70 Project.

A.I.R. is working closely with local personnel who are directing the program, and it is possible that much of the information collected for this longitudinal study will also fulfill information requirements for local evaluation efforts. Each pupil's test scores are being sent back to the schools as soon as they are available. The results of these tests are helpful to teachers and counselors in appraising student progress and in identifying individual student's strengths and weaknesses. In addition, statistical summaries of student and teacher questionnaire responses will be available in a form which safeguards the privacy of individual students and teachers.

In assessing this evaluation effort, there is the intangible but nonetheless real benefit of participating in a large-scale, long-range effort to improve the quality of American education. If we are to accomplish this, we must first find out which learning experiences produce meaningful changes in student attitudes and achievement. We hope to make significant discoveries as we follow the development of our students in Duluth as does A.I.R. as it follows the development of approximately 25,000 students for an expected period of five years in diverse educational and social environments. Teachers and administrators in cooperating districts are thus sharing in a nationwide project with many others interested in new developments in education. Many of the developments in Duluth can be directly related to this school systems involvement in E.S. '70.

CONCLUSIONS

There is very little doubt that Duluth's participation in the E.S. '70 Project generated a great deal of activity, particularly in the area of staff development and in-service training both for administrators and teachers. We also have a strong feeling, however, that much of the activity that took place locally might have taken place in any case. While there was a great deal of organizational activity in the network (working out Federal-State-Local relationships, formation of a non-profit corporation), it is felt, considering the scope of the project, that there was minimal impact on the instructional program at the local level as a direct result of E.S. '70. It is a fact that many of the goals of E.S. '70 and the original paper on the organic curriculum by Bushnell and Morgan were already the goals of this district. That probably is why Duluth was one of the original schools in the E.S. '70 network. For this reason, it is contended that many improvements that have been made in the individual districts may have come about even if the various districts had not been E.S. '70 participants. Without doubt, the organizational arrangements worked out by the network were important steps, clearly needed in order to assure significant program implementation in the individual school districts.

In our estimation, there are four basic reasons why E.S. '70 created only minimal impact at the local level.

-First, no significant concensus was achieved among the network schools as to what the eventual E.S. '70 high school should be, nor had a description of that school in specific terms been developed.

Lacking specific goals or descriptions of what we were shooting for, it was impossible to develop any meaningful program approach that a school district might follow to attain these goals. In short, there was no E.S. '70 point of view as to where we should go, or as to how we should get there. We talked about individualized instruction (whatever that might mean to all concerned), we talked about systems approach, we talked about staff development, we talked about computer utilization, learning packages, student learning contracts, student packets, continuous progress curriculums, evaluation, and we talked about a "vocationally and academically integrated curriculum." But without specific network goals, and without methodology to reach these goals, and above all without network-wide acceptance of these goals and agreed-upon methodologies, the banding together of 18 local school systems had very little meaning.

-Second, there seemed to be no real commitment to the concept of the need for a catalog of behavioral objectives as a basis for a new secondary curriculum and organization. For whatever reasons, the U.S. Office of Education did not focus on this task as an item of high priority. As for the various network school systems, if they could not accept behavioral objectification as basic to curriculum design for the E.S. '70 school, there seemed to be little reason for their membership in the network.

We have always felt that the rationale for the development of a new secondary school curriculum and organization as established in the paper the Organic Curriculum and in the paper Behavioral Objectives for an Organic Curriculum by Robert Mager were sound. It was also our strong conviction that success could not be achieved by each school district pursuing its own route towards this goal. However, a working concensus around those written definitions was not formed.

It seemed evident that the E.S. '70 process should focus on the development of instructional programs in each network school which could make maximum use of the behavioral objectives. Instructional strategies to attain those objectives also needed to be developed. And the local school districts--where the kids are--needed to play a key role in this enterprise. This never materialized.

-Third, the network never apparantly got sight of an element of vast importance: The need to integrate vocational education in a meaningful way into the secondary curriculum. This was an essential feature of the original rationale for an "organic curriculum."

Bushnell and Morgan pointed out that "much of what is now taught in our public schools fails to recognize that technology is generating profound changes in the nature of work. The tendency in the past to separate general and vocational educations has penalized both those who are college-bound and those who plan to terminate their formal education at the end of high school or junior college. The academically oriented students are directed to college preparatory programs which will enhance their chances for college admission. They have little opportunity to acquire a knowledge of the occupational world in which they will live and earn a living as adults. At the same time, vocational students receive too little opportunity to develop competence in the basic educational skills which they must have if they are to cope adequately with present society."

We feel that this aspect of the E.S. '70 prescription was completely underemphasized. Indeed, if one looks closely at the

rationale for the Vocational Education Amendments of 1968 as passed in Congress, this message comes through with both loudness and clarity. The strong need to integrate vocational and academic education has received the conscious recognition of even the most traditional-minded educators. But E.S. '70, though it affirmed its recognition of this need at its inception, and although its network structure provided an opportunity for creative action of high visibility, muffed its opportunity to demonstrate national leadership in an impressive and highly dramatic manner.

-Fourth and finally, and also very regrettably, the U.S. Office of Education did not focus on an important priority put forward by its own research arm. It did not muster its resources to create a linkage between local schools and the important research projects being carried out in the universities and the Research and Development Centers around the country.

Let us look back to the Office of Education's original proposal for an E.S. '70 network. Something like this was stated: "In the past, small scale and fragmented research projects in education have had little if any impact on the way public schools operate in this country; therefore, let us design a large-scale, developmental research project which involves local school districts on a basis of full and active participation." E.S. '70, however, has failed to become that project. The local districts really never were active participants in research and development. Admitting that certain organizational and administrative characteristics of the U.S. Office of Education limited its action in this regard, it must nonetheless be acknowledged that there have been clear suggestions to that office from the Congress of the United States that such procedures should be implemented. Nevertheless, the fact remains that literally millions of dollars in contracts were let with a minimum of network-school involvement. Very little was done to bridge the gap between the nation's academic community and its public schools.

It is interesting to note that at this writing, the current Commissioner of Education, Dr. Marland, is again calling for the integration of academic and vocational education under the umbrella of Career Education. It is also interesting to note that Dr. Marland is calling for the establishment of National Educational Renewal Centers for the purpose of putting into practice at the local level that which is being formulated through research and development at the university and Research and Development Center level. It is hoped that this effort is successful where we feel E.S. '70 failed.

Finally, it should be pointed out that although we feel that something was lacking as one views the total E.S. '70 network, much important activity and progress did take place in Duluth, Minnesota, over the past several years. Much of this can be attributed to having us focus on our goals in a much broader context that just Duluth. In no small way, this was caused by our involvement in E.S. '70 and the goals inherent in the organic curriculum.

APPENDIX A.--PROGRAM EVALUATION AND REVIEW TECHNIQUE CHART

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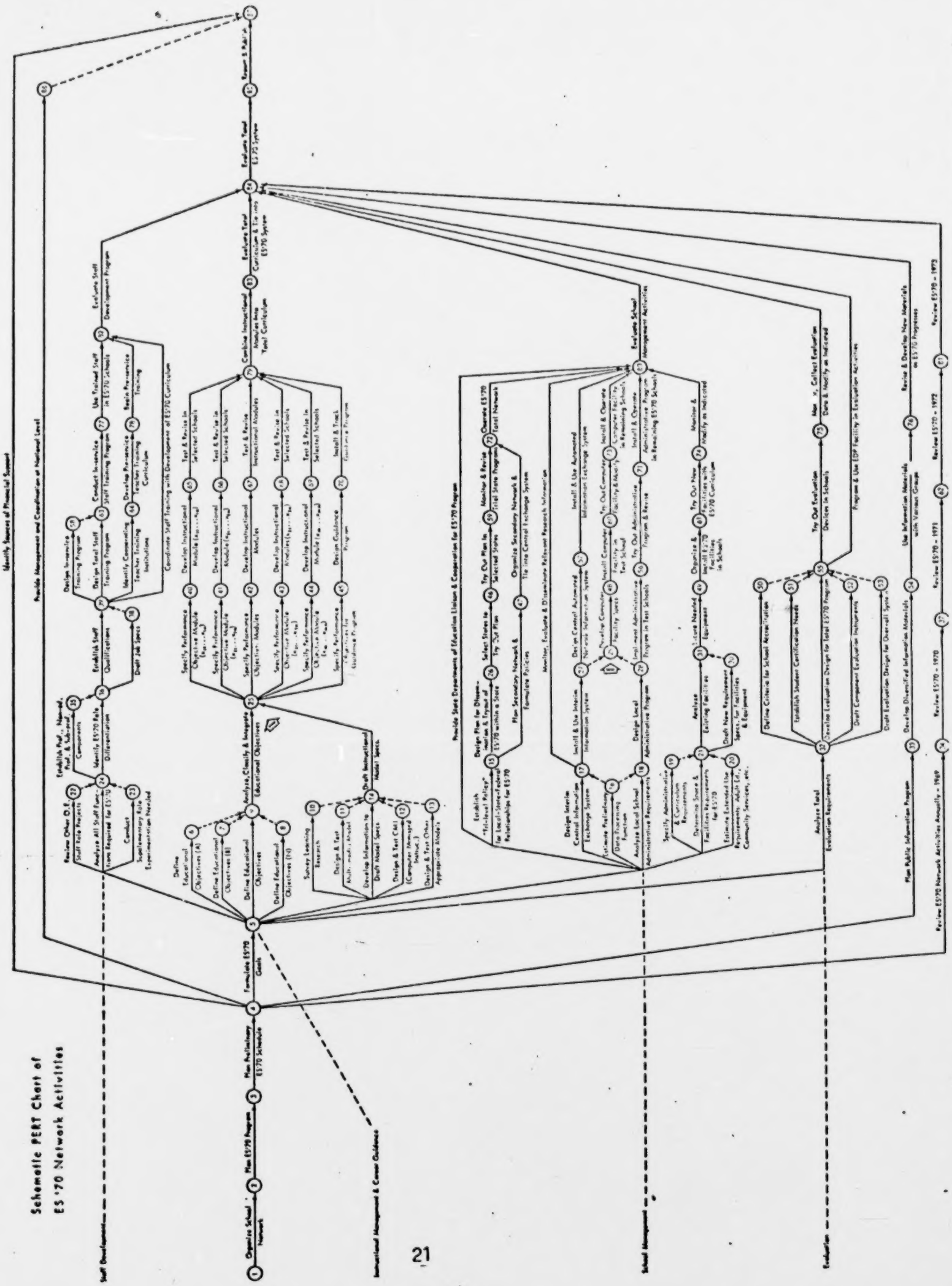
Schematic PERT Chart of
ES '70 Network Activities
Staff Development
Instructional Management & Career Guidance
School Management
Evaluation
Identify Sources of Financial Support
Provide Management and Coordination at National Level
Coordinate Staff Training with Development of ES'70 Curriculum
Develop Instructional Modules (Equipment)
Develop Instructional Modules (Equipment)
Develop Instructional Modules (Equipment)
Develop Instructional Modules (Equipment)
Develop Instructional Modules (Equipment)
Develop Instructional Modules (Equipment)
Test & Revise in Selected Schools
Test & Revise in Selected Schools
Test & Revise Instructional Modules
Test & Revise in Selected Schools
Test & Revise in Selected Schools
Test & Revise in Selected Schools
Develop Guidance Program
Install & Track Experimental Programs
Combine Instructional Modules into Total Curriculum
Evaluate Total Curriculum & Training in ES'70 System
Evaluate Total ES'70 System
Revise & Refine
Evaluate Staff Development Program
Use Trained Staff in ES'70 Schools
Develop Preservice Teacher Training Curriculum
Develop Inservice Staff Training Program
Conduct Inservice Staff Training Program
Identify Cooperating Teacher Training Institutions
Design Inservice Training Program
Design Total Staff Training Program
Establish Staff Qualifications
Draft Job Specs
Review Other O.E. Staff Role Projects
Analyze All Staff Functions Now Required for ES'70
Conduct Supplementary Role Experimentation Needed
Establish Prof., Non-prof., & Sub-prof. Components
Identify ES'70 Role Differentiation
Define Educational Objectives (A)
Define Educational Objectives (B)
Define Educational Objectives (N)
Analyze, Classify & Integrate Educational Objectives
Survey Learning Research
Design & Test Multi-media Model
Develop Information to Draft Model Specs
Design & Test CMI (Computer Managed Instruct.)
Design & Test Other Appropriate Models
Draft Instructional Model Specs
Organize School Network
Plan ES'70 Program
Plan Preliminary ES'70 Schedule
Formulate ES'70 Goals
Provide State Department of Education Liaison & Cooperation for ES'70 Program
Design Plan for Differentiation & Typing of ES'70 within a State
Plan Secondary Network & Formulate Policies
Monitor, Evaluate & Disseminate Relevant Research Information
Establish "Ministerial Policy" for Local-State-Federal Relationships for ES'70
Select States to Try ES'70 Plan
Organize Secondary Network & Interstate Policies
Tie into Central Exchange System
Monitor & Revise Total State Program
Operate ES'70 Total Network
Design Central Automated Network Information System
Design Interim Central Information Exchange System
Develop Interstate Program & Revise
Try Out Administrative Program in Test Schools
Install & Use Automated Information Exchange System
Install Computer Facility in Test School
Try Out Computer Facility & Modify
Install & Operate Computer Facility in Remaining Schools
Install & Use Interim Information System
Estimate Preliminary Data Processing Function
Analyze Local School Administrative Requirements
Design Local Administrative Program
Install & Operate Administrative Program in Remaining ES'70 Schools
Evaluate School Management Activities
Specify Administrative & Curriculum Requirements
Determine Space & Facilities Requirements for ES'70
Estimate Extended Use Requirements Adult Ed., Community Services, etc.
Analyze Existing Facilities
Draft New Requirements Specs. for Facilities & Equipment
Install ES'70 Facilities in School
Try Out New Facilities with ES'70 Curriculum
Monitor & Modify as Indicated
Assess Needed Equipment
Organize & Install ES'70 Facilities in Schools
Monitor, Collect Evaluation Data & Modify as Indicated
Try Out Evaluation Design in Schools
Program & Use ES'70 Facility in Evaluation Activities
Develop Evaluation Design for Total ES'70 Program
Develop Criteria for School Accreditation
Establish Student Certification Needs
Develop Evaluation Instruments
Draft Component Evaluation Instruments
Draft Evaluation Design for Overall System
Develop Diversified Information Materials
Use Information Materials with Various Groups
Review & Develop New Materials as ES'70 Progresses
Plan Public Information Program
Review ES'70 - 1970
Review ES'70 - 1971
Review ES'70 - 1972
Review ES'70 - 1973
Review ES'70 Network Activities Annually - 1969

APPENDIX B.--SCRIPT OF PRESENTATION ON E.S. '70

AN EDUCATIONAL SYSTEM FOR THE 70'S

For years this country has complacently assumed that we lead all other nations in our commitment to the goal of equal educational opportunity for all citizens. It is true that universal education in the United States has been achieved for virtually all children between the ages of six and thirteen. And it is also true that almost seventy percent of our youngsters who start at age six actually graduate with high school diplomas.

Our leadership in the number of students attending college is indicated by the fact that only four percent of college age youth in European common market nations receive university degrees in contrast to twenty percent in this country. These seem to be heartening figures, especially when viewed in light of today's complex urban environment and the demand for more advanced job skills. To paraphrase a recent television advertisement, we must be doing something right.

It is not my purpose, however, to applaud our achievements and minimize our failures. There are too many sobering facts which point out the inadequacies of our system. One needs only to read the reports of innumerable investigating committees which describe the terrible condition of our inner city schools. These reports accurately portray, I believe, a system grown sluggish with age. Sociologists and educators have observed time and time again that our public schools are non-rewarding, that students are "turned off" by a series of failure experiences, that students feel the learning environment is hostile and custodial rather than involving and challenging and that many teachers fail to appreciate the individual differences in students. Marshall McLuhan goes so far as to say that the real learning environment for today's youth is not in school, but rather outside, and that children might be better off not going to school. A recent report on the Washington, D. C. school system observed that if one applies the usual criteria of scholastic achievement -- holding power of the school, post-secondary employment status, and college entrance qualifying scores -- the district schools do not measure up well. These are not unique characteristics of the D. C. school system; many of these same failures can be found in most of the larger urban systems throughout the country.

In a recent international study evaluating the teaching of mathematics to secondary school students, the United States ranked among the least effective in mathematics achievement. The IEA study reported the performance of each country by the percentage of its students reaching various levels on the test scores. Students were compared against international standards derived from the combined performance of students from all countries in a given age or grade group. Only four percent of American thirteen-year-olds scored in the upper tenth.

A couple of years ago, it became clear to the Bureau of Research at the United States Office of Education that money being invested in curriculum development was not yielding an adequate return. Small scale fragmented curriculum development efforts were producing limited results. While it is not our purpose here to critically examine these earlier investments, it should be observed that such efforts were not planned from the perspective of determining goals, marshalling the resources, and following through in an organized way to implement massive curriculum changes. It is our contention that we know how to improve our current practices. What is sorely needed is a plan for implementation.

The problems and shortcomings associated with our present day educational program indicate a need for a clearer definition of goals and an overhaul of the educational process. Fortunately, a method of arraying ends and means so that we have a clearer idea of the choices that are open to us offers us a better way of resolving this problem. As Flanagan has pointed out, systems analysis is not a magical formula for successful implementation of change. "In its application to education, objectives must be defined, input and output of the system have to be accurately measured, and all relevant conditions described and defined. The specific factors which have prevented effective use of these approaches in education are lack of well-defined objectives and inadequate measuring procedures to determine whether the student has achieved the objectives set for him." We are all well aware of the benefits of applying this method to such complex problems as weapons systems development or aerospace research. Former Secretary of Defense McNamara's success in modifying the organization of the Defense Department in such a way that all planning and procurement could be focused around missions or objectives that cut across the boundaries of the three services and extend beyond the confines of the annual budget illustrate the point. Systems analysis has become such a significant tool in the management of complex business enterprises that no large company now ignores it.

It is the thesis of this presentation that this same methodology can be applied to the problems of education, even though we are dealing with a complex social system. It is this system, which has been labeled the Organic Curriculum, which will be described in detail now. First, I would like to spend a few minutes talking about the goals or objectives of this system. Then I will consider the characteristics which will make the achievement of these goals possible. Finally, I would like to summarize briefly some of the steps which are being taken to achieve this overall plan.

It is our conviction that any desired educational program should permit the development of basic learning skills together with appropriate entry level job skills which qualify students for work. It is not enough, however, for such youngsters to have only narrowly defined job skills; they should be cross-trained in a cluster of occupations. They should also be prepared for their role as citizens. In

addition, skills necessary to adapt to our rapidly changing environment, and occupational and social mobility should be incorporated into an academic and vocational education curriculum. Personal development, such as skills in communication, inquiry, and public relations should bring the student into close contact with social reality. While grappling with the outer world, he must derive an inner feeling of satisfaction and control over his own destiny. In other words, achievement motivation and integrity of self must be enhanced through these learning experiences as well. The student who graduates from the program should possess the necessary qualifications for maximum flexibility in his post-high school options. He might want to enter a university or college and pursue an academic program. He might want to enter a community college or technical school and receive post-high school occupational training. He should have the additional option of continuing his education in an adult education program if he chooses. Or he might even decide to go to work. The key point is that none of these options should be closed before high school graduation.

The emergence of a high school program which will ensure the attainment of these specifications or goals will certainly include academic as well as occupational training but must also incorporate such elements as personal development, work study experience, and career counseling. Even the avocational or school sponsored recreational or social programs should be considered as in integral component of the system. Each of these elements and sub-parts must be defined in terms of their contribution to the attainment of specific performance objectives.

The integration and interaction of these components will be a result of careful systems design and will emphasize the following characteristics: They will be combined in appropriate ways to insure the most efficient and effective learning for the individual student. Unique learning characteristics and styles will be catered to through the design of individually prescribed programs leading to the attainment of specified performance goals. Appropriate self-paced and self-instructional devices will be employed to accommodate the individual learning differences among students. Each student as far as possible will be given a feeling of success as he proceeds along the way, yet the content of the subject matter to be learned will be presented in a rigorous and demanding fashion. A truly integral curriculum must be developed so that each activity relates logically to the next activity and leads to the efficient attainment of the performance goals. An organic curriculum, as envisioned, would necessarily have to be interesting, challenging, and motivating to each student. Furthermore, after thorough experimentation and revision, the curriculum should be capable of replication in a number of different school districts and it should not be much more expensive than today's per-pupil cost.

There are many unanswered questions that are being and must be researched before such a curriculum can become operational. The problem of logistics alone is large and complex. How do you control the flow of students through the program without inhibiting individualized learning? Without the traditional Carnegie Units and subjects, how can school accreditation be achieved? As the role of teachers change,

will they be acceptable? Should this system work better over a forty-eight week time cycle or should it be confined to the traditional thirty-six weeks? What are the problems involved in cataloging and comparing the performance objectives of various disciplines, with some hope of merging the academic and the occupational? These and many other fundamental questions must be answered before we are able to reach the "Kitty Hawk" phase of what might become a moon shot for education.

To undertake this systematic approach to curriculum design, two levels of strategy have been established. The first is to state the program output specifications in terms of performance objectives. Without these specifications, there will be no basis for deciding what learning interventions or teaching strategies would be most effective. Initially, the performance objectives would be classified in terms of the traditional discipline orientations. Thus, science, math, English, social studies, and vocational education will be approached through involving those who represent the established interest. We predict that a careful analysis and evaluation of the performance objectives by discipline will lead to the identification of wasteful redundancies in teaching the same or similar objectives.

More important than redundancies are the gaps. There may be important educational objectives which should be taught somewhere in the curriculum but in fact are not taught anywhere. In the interest of efficient learning it may be more sensible to re-classify some of the objectives into new groupings that are independent of the disciplines from which they were originally derived. For example, the principles of scientific method may be better taught in industrial arts or food services than in physics.

Let us digress for a moment. Two problems immediately confront us as we attempt this massive effort at specifying performance objectives. First, not all of the goals that students should achieve can be defined in terms of specific observable behaviors. Second, no single catalog of objectives will be acceptable to all schools. We hope, however, that there is a greater degree of commonality in the objectives across districts and regions than is presently supposed. To insure that these objectives will be acceptable to the schools it is essential that subject matter experts work intimately with the classroom teacher and the local curriculum planners. Writing performance objectives is a demanding task and it is essential that experienced behavioral technologists be centrally involved. It is also important that appropriate representatives from the professional organizations such as the National Science Teachers Association or the American Association for the Advancement of Science be included. Thus, the Office of Education will be involved in bringing together teams of scholars made up of behaviorial scientists, subject matter specialists, classroom teachers, and professional society representatives.

The organizations that either have or could develop such teams are short in number. For this reason, the Bureau of Research will attempt to identify the more promising sources and invite them to submit unsolicited proposals for development and classification of objectives by discipline. Proposals have been or will be accepted for behavioral

objective definition efforts in the following disciplines: Mathematics, Science, Humanities, Social Studies, Personal and Social Skill Development, Vocational Education and Communications.

Following the specification of the terminal performance requirements, the synthesis of performance objectives between the various disciplines will be undertaken. A standard vocabulary or glossary of action words will be developed as a basis for coding and classifying the various objectives identified. Each objective will then be classified in terms of the process of learning described and the object upon which the process is brought to bear. Sets of objectives will be spelled out with specifications for both the interim or intervening objectives as well as descriptions of how one set of objectives can be related to another. As appropriate models for evaluating, analyzing, and synthesizing performance objectives are developed, contracts will be awarded in additional disciplines. It should be possible to complete some sets of objectives before other sets are completed making it possible to develop the learning materials and the interventions well before the total effort at establishing performance objectives is completed.

Moving now to the next step in our plan for implementation, we will concentrate our efforts on the development of appropriate materials, the selection of media, and the development of measurement instruments. The testing of a sub-system of this model is underway at the Naval Academy at Annapolis. These contracts were let in each of three subject matter areas -- economics, psychology and physics. Once the sub-system in these subjects has been tested and validated, it can then be used to develop other sub-systems or learning interventions at the high school level. You will note that we call for the intensive training of teachers following the development of appropriate materials and media. This then leads to the installation of the new curriculum in the pilot schools.

We have not described in detail the second level of effort. First, that effort of communicating with not only the professional groups in education (which are legion) but also with parents and the lay leadership in this country through the popular media. Second, the working out of a partnership between the local, state and federal levels of government, all of whom have to work together in a coordinated way if the goals of this project are to be accomplished.

To date a number of prescribed actions have taken place. Seventeen school districts in fourteen states have been selected to form the E.S. '70 network of schools. These school districts include: Bloomfield Hills, Michigan - Baltimore, Maryland - Brethitt County, Kentucky - Philadelphia, Pennsylvania - Quincy, Massachusetts - Monroe, Michigan - Portland, Oregon - Mamaroneck, New York - Atlanta, Georgia - San Antonio, Texas - San Mateo, California - Duluth, Minnesota - Boulder, Colorado - Willingboro, New Jersey - Fort Lauderdale, Florida - Mineola, New York - and Houston, Texas. These schools constitute the primary network and they, along with the state commissioners for the states represented, have worked out an organizational structure to initiate the project. Each of these school districts has assigned a

director to the project. The directors took part in a training program conducted during the summer of 1967. The United States Office of Education is paying the salary of the director assigned full time for the task of providing liaison with the states, the United States Office of Education and the other school districts making up the network. During the first year of effort while the performance objectives are being developed, each school is preparing the way for the subsequent introduction of the new curriculum. There is a great deal of thought being given to the development of a secondary network of schools to supplement efforts of the primary network. In all, the total strategy calls for a five year plan which will require a total investment of roughly three hundred and fifty million dollars.

What kind of systematic way will various resources be linked together to carry out the development effort. The Bureau of Research in the Office of Education hopes to invest something in the neighborhood of ten percent of the total cost of this effort. Therefore, we must look to other sources of funds such as private industry, foundations and other government agencies to carry the major burden. Note that manpower resources are as important as dollars. It is only through the involvement of various interest groups and resource personnel that an effective integration between the various traditional subject areas of education can be established.

We have now covered in capsulated form the various steps being undertaken in the unfolding of this major curriculum effort. In conclusion, let's review briefly this systems approach to meeting the requirements of public education in this country.

What are the characteristics of systems planning envisioned by E.S. '70? First, the characteristics must be defined in terms of their relationship to behavioral attainment by individual pupils. Motivation, aptitudes, innate and acquired, and career objectives are some of the background characteristics or inputs which must be worked with.

The system must be learner-centered rather than teacher-centered. By careful pre-planning and comparison of the likelihood of pupil success the most suitable material and technological resources can be utilized within the context of an individualized curriculum.

Individualized study can be implemented through the expanded utilization of flexible scheduling. All study patterns should be directed toward the attainment of interim behavioral objectives with revision resulting from increased feedback as individual students progress through modular units of instruction.

By improving the progress assessment tools available to the profession, interim and final results can be more candidly and effectively measured.

A systematic emphasis on participation, persuasion and information sharing can go a long way toward coordinating the separate elements of the system while dispelling the fear of federal authority.

Mobilization of specialists in the areas of vocational education, humanities, English, communications, social sciences, mathematics, and sciences into a flexible network of program development and information sharing will enhance the assignment of specific responsibilities for curriculum development.

Finally, the characteristics of predicting the combined effect of several lines of simultaneous action on one another is essential. In this way, unwanted consequences can be reduced and alternative lines of compensating action generated.

APPENDIX C.--STATEWIDE E.S. '70 CONFERENCE PARTICIPANTS, AGENDA, AND SUMMARY SHEET

E.S. '70 CONFERENCE - DULUTH, MINNESOTA - SEPT. 19, 1968

AGENDA

10:00 - 10:30 (Chester Park School) Coffee and observation of program

11:00 - 12:00 (Duluth Area Institute of Technology)

1. Purpose of the Conference - Dr. Rasmussen
2. National Overview of E.S. '70 Project - Dr. Morgan

12:00 - 1:00 Lunch at Highland Supper Club

1:00 - 1:45 Duluth Area Institute of Technology

1. Local Overview of E.S. '70 Project

1:45 - 3:00 Open Discussion

Possible Points for Discussion

1. Relationship with Higher Education
2. Relationship with State Department of Education
3. Secondary Network
4. Pre-service teacher training programs
5. In-service teacher training programs
6. Vocational education - new approaches
7. Computer facilities
8. Specific projects
9. State Advisory Committee

3:00 - 3:30 Summary and Conclusions

CONFERENCE PARTICIPANTS

NAME	REPRESENTING
Duane Matthesis	State Department of Education
Ray Peterson	State Department of Education
Robert Keller	University of Minnesota
Jack Merwin	University of Minnesota
Ray Price	University of Minnesota
Warren Meyer	University of Minnesota
Henry Borow	University of Minnesota
Harris Miller	RAND Council
Val Plumb	University of Minnesota, Duluth
Phil Richards	College of St. Scholastica
Marvin F. Daly	UMREL
Richard Bye	State Board of Education
Bob Morgan	Florida State University
L. V. Rasmussen	Duluth Public Schools
John Muldoon	Duluth Public Schools
Dick Pearson	Duluth Public Schools
Dell Daedo	Duluth Public Schools
Tom Boman	University of Minnesota, Duluth
Herb Taylor	Duluth Public Schools
Jim Duffy	Duluth Public Schools

ACTIVITIES IN DULUTH RELATED TO THE E.S. '70 PROJECT (Summary Sheet)

1. INDIVIDUALIZED INSTRUCTION PROGRAMS

For the past four years the number one priority of the Duluth Public Schools has been to implement an individualized instructional program for students who attend our schools. The major components of the individualized instructional program in Duluth consist of the development of "learning packages" based on specific behavioral objectives, wide use of a variety of instructional resources (both software and hardware), a range of learning strategy for individual students based on their own needs, interests and capabilities, and intensive in-service training with staff to implement the program.

While there is some variation in organization and management, the components mentioned above exist in projects at seven schools in our system and include approximately 2,500 students. The schools involved include Chester Park Elementary, Congdon Park Elementary, Nettleton Elementary, Franklin Elementary, Washington Junior High, Ordean Junior High and Central Senior High.

2. FACILITY DEVELOPMENT

The Duluth Schools are now in the process of planning for a new high school which will be our E.S. '70 high school. The architectural firm of Reid and Tarics has completed the preliminary plans for the facility and is beginning work on the working drawings. The school, which will have emphasis on an integrated vocational curriculum, will be designed for maximum flexibility around an I.M.C. center. Each department will have independent study areas and small group instruction rooms.

3. ECONOMIC EDUCATION CURRICULUM DEVELOPMENT PROJECT

For the past year and one-half, with support from the Hill Family Foundation, a curriculum development committee consisting of Duluth Teachers and Administrators has been developing a catalog of specific performance objectives in economics which could be used as the basis for "learning packages" for an individualized instructional program in grades K-12. The catalog of objectives has been completed and we are now ready to work on the next step of matching existing instructional resources to the objectives and developing test situations to determine whether the objectives have been met by the learner.

4. WORK EXPERIENCE PROGRAMS

Besides the typical Distributive Education program and Neighborhood Youth Corps programs, we do have an embryonic program for secondary students in which they spend a portion of their school day working in some business or industry in the community. This is a program we hope could be greatly expanded in the E.S. '70 Project.

5. E.S. SUMMER INSTITUTE - 1968

The Duluth Schools in cooperation with the University of Minnesota, Duluth and the College of St. Scholastica conducted a six-week training institute for teachers from the E.S. '70 network of schools this past summer. The institute, which was supported by the United States Office of Education Bureau of Research, concentrated in four areas -- the development of behavioral based "learning packages," group process, educational simulation and film as a method of instruction. Forty-five teachers from thirteen of the schools representing a wide diversity in subject matter background participated in the institute. We feel that there are now forty-five classroom teachers in the network who understand the concepts of the E.S. '70 Project and are ready to assume leadership positions in their own schools.

6. PROJECT CRITERION - COLLEGE OF ST. SCHOLASTICA

The College of St. Scholastica has implemented an individualized instructional program for all of their teacher candidates. Dr. Richards will describe this in more detail.

7. FILM STUDY COURSE - CENTRAL SENIOR HIGH

A course of study in English for disadvantaged youth has been implemented at Central High School which uses its basic instructional resource film. While the course is directed at understanding the film as an art form, it also has as a basic premise the assumption that film is also a means of understanding social commentary. It also takes into account the fact that our society is moving more and more to the non-print media as a means of communication.

8. INTER-NATION SIMULATION

The Duluth Schools have experimented with several learning games as an instructional resource. The one outstanding simulated exercise that has been used the most is Inter-Nation Simulation. The game is currently being used in many of our individualized projects. During the past summer one entire course in the social studies area for secondary students was based on this game. Approximately 90 students participated in the course, and an evaluation of what happened during the course of the summer seems to indicate that this is a superior method of instruction.

9. ACHIEVEMENT MOTIVATION WORKSHOP

This past summer a workshop for approximately 50 teachers from our individualized instructional projects was held which had as its major theme the methodology that could be used to motivate students to greater achievement. We know from research being conducted by McClelland and Alschuler at Harvard that it is possible to design the learning environment in such a way that achievement motivation can be enhanced for the learner. Dr. Boman will describe this in more detail.

10. CONTINUOUS RANDOM ACHIEVEMENT MONITORING PROJECT - CENTRAL

During the past year the Duluth Schools have been cooperating with Stanford University in the development of the Continuous Random Achievement Monitoring Project. The primary purpose of this project is to combine sampling techniques with the notion of measuring achievement by final performance criteria at all stages of the teaching cycle.

11. REPORTING SYSTEM TO PARENTS

In our individualized instructional program at Nettleton Elementary a new method of reporting to parents is being worked out. While this method is in a very early stage of development, it holds some promise for the kind of method which will be necessary in the E.S. '70 Project. With the use of a Source Record Punch and a computer we have worked out a system which makes it possible, at any given moment, to receive a print-out from the computer which describes in prose exactly what performance objectives the student has completed, the level of accuracy, the instructional resource used to complete the objective and the degree of enthusiasm exhibited by the student with that particular package. We think this has tremendous implications for determining student learning styles before the selection of the performance objective by the teacher or the student.

12. A SYSTEMS APPROACH FOR THE DEVELOPMENT OF A MODEL FOR ELEMENTARY TEACHER EDUCATION

A consortium consisting of the Duluth Public Schools, the College of St. Scholastica, the University of Minnesota, Duluth, Wisconsin State University, Superior, and the Superior Public Schools submitted a proposal to the Bureau of Research to develop a model of educational specifications for a comprehensive undergraduate and in-service teacher education program for elementary teachers. While the proposal was not approved (only nine in the United States were) it is felt that many of the ideas for teacher education contained in the proposal are very worthwhile and could still be implemented.

ANTICIPATED ACTIVITIES IN DULUTH RELATED TO THE E.S. '70 PROJECT

1. PROPOSAL TO DEVELOP THE SPECIFICATIONS FOR A COMPUTER ASSISTED SYSTEM FOR MANAGING AN INDIVIDUALIZED LEARNING ENVIRONMENT

A proposal has been submitted to the Bureau of Research which has three basic objectives: (1) to determine the data management needs of an individualized instructional program, (2) to develop specifications for a computer-assisted system which will meet these needs and (3) to ascertain the cost to implement and operate such a system. We have every reason to believe that this project will be funded.

2. SOCIAL STUDIES PROPOSAL 35

Dr. Irving Morrissett, Executive Director of the Social Studies Consortium located at the University of Colorado, in cooperation with the Duluth Schools, the Bloomfield Hills Schools, the Houston Schools and the Boulder Schools, is in the process of developing a proposal for the specification of the performance objectives in the social studies for the E.S. '70 Project. We have worked closely with Dr. Morrissett on this and anticipate early funding.

3. STUDENT DECISION MAKING

The Duluth Schools would like very much to cooperate with an Institution of Higher Education to conduct the student decision-making study and model development that has been requested by the United States Office of Education.

4. IN-SERVICE TRAINING IN ACHIEVEMENT MOTIVATION AND GROUP PROCESS

As an addendum to the state plan submitted to the United States Office of Education under the Educational Professions Development Act, the Duluth Schools submitted a proposal for in-service education for our staff in the area of achievement motivation. We hope that this will be successful.

5. VOCATIONAL EDUCATION

The Duluth Schools are now exploring possible projects within the intent of Title I of the new Vocational Education Act. We are firmly convinced that a great thrust needs to be made to begin to integrate vocational education, in a meaningful way, in the total secondary education curriculum. This, of course, is one of the goals of E.S. '70.

6. CONTINUOUS EXPANSION OF INDIVIDUALIZED INSTRUCTIONAL PROGRAM

The Duluth Schools are committed to the expansion of an individualized instructional program in our schools. This, of course, has tremendous implications for teacher-training and in-service training. We would hope that Higher Education and the State Department of Education could be of assistance in these areas.

7. EXPANSION OF DATA PROCESSING AND COMPUTER USAGE

We will consistantly explore new methods of information retrival, using the most modern equipment we can acquire both for managing our system as it develops and for the instructional program as well. We are also convinced that computer usage in the instructional program is with us and we need to work out arrangements in the program to accommodate as much of the new technology as possible.

APPENDIX D.--NATIONAL LABORATORY FOR THE ADVANCEMENT OF EDUCATION DEMONSTRATION

I -- THE DULUTH APPROACH: A DEMONSTRATION

In mid-1968, The Aerospace Education Foundation announced a "National Laboratory for the Advancement of Education," to be held in the nation's capital in November with "individualized learning for the inner city" as its theme. The Foundation, a non-profit organization supported by the Air Force Association, seeks to bring into creative interaction men from three prime elements of our society: educators, industrial executives and professional men. Among the Foundation's highest priorities is the effort "to enhance the impact of advanced concepts and techniques on the learning process in this country." The quotation is from the Foundation's brochure announcing the National Lab, which also carried the statement that "our school systems merely have scratched the surface of American industry's vast potential in the field of innovative learning."

With goals such as these, it is not surprising that the Foundation chose to combine the concepts of individualized learning and the problems of our inner city schools in choosing a theme for its first National Laboratory. In remarks addressed to the conclave at one of its first sessions, the newly-elected President of the Foundation suggested that "individualized instruction is at least a partial solution to many of the problems" of inner-city schools. The newly-elected Presient of the Foundation was Dr. L.V. Rasmussen, the Superintendent of the Duluth Public Schools. And the Duluth Schools were presenting a demonstration at the Laboratory that was easily the most-talked-about event of the three-day affair.

It was, indeed, a great day for the delegation from Duluth. The distinction of having their superintendent elected as President of the Aerospace Education Foundation matched their distinction in being one of the ten school systems selected to demonstrate at the National Lab. And when the Duluth demonstration became a "standing room only" affair, their pride and enthusiasm was understandable. Duluth had been voted heretofore chiefly for its severe climate and its provincialism; now it was being honored nationally for innovation in education.

A description of the Duluth demonstration will serve as an apt introduction to this chapter on the Duluth experience with individualization, since it was based on, and was designed to typify four years of experience in several individualized projects and since its intent was to synthesize the approach inherent in all the Duluth projects rather than to recreate any single one of them.

The setting was a small ballroom at the Washington Hilton Hotel -- hardly an optimal setting for a classroom demonstration. There was a carpeted floor, there were brocaded walls and there were crystal chandeliers--and very little else. But this was only one of several ways in which the contingent features of the National Lab setting tested the Duluth approach as well as demonstrating it. In this case, the physical limitations helped to point up the fact it is unnecessary to undertake major reconstruction of physical plant to individualize successfully: the approach can be adapted to the available facilities with only minor modifications. 38

Another contingency helped to prove that students need no special background for individualization, and can respond to it readily. In the demonstration classroom, the student participants were sixth-graders from a nearby Washington, D.C. elementary school. Most of them were black youngsters from the inner city, and none had prior exposure to innovative procedures.

Another factor was the audience: more than a hundred highly critical professionals at each of the 45-minute sessions, seated a few inches from the participants. This helped to demonstrate that the Duluth approach to individualization can motivate youngsters toward self-directedness and responsibility. It also paralleled the situation in the individualized projects in Duluth, where troops of curious, visiting educators have been roundly ignored by the busy students in pursuit of their educational objectives.

The most arbitrary of all limitations, of course, was the fact that there were three demonstrations daily, so that the narration had to be resumed following each ten-minute intermission, and the salient features of the process repeatedly pointed out to the changing audience. But here again, student absorption in the learning process preserved the credibility of the atmosphere. The narrator had to perform and stop and perform again, but the students simply "went to school" for three consecutive and unbroken hours during each of the three afternoons of the National Lab. To a very large degree, the same was true of the demonstration teachers, who went about their business in a reasonably normal and consecutive way, giving at least three-fourths of their attention to their students, and perhaps a fourth to the rhetorical necessities of the situation, which included interruptions for interviews by the narrator.

The demonstration, then, was to a considerable degree a "slide-of-life" as it is lived by students and teachers in the individualized instruction projects in the Duluth Public Schools. There were no rehearsed segments or memorized lines. The effort was to individualize instruction for a group of Washington youngsters--despite the audience, the unusual setting and the other limitations--and to let the instructional process be "for real." The narrator ad-libbed from a list of basic characteristics of the Duluth approach, and improvised examples from the naturalistic setting in which he moved with his portable microphone. It was most probably this quality of eavesdropping on reality that made the demonstration so successful.

The greatest single asset was the presence of three veteran Duluth teachers to conduct the demonstration. June Brieske, Dale Koch, and Robert Plachecki knew the process intimately, and two of them had been involved in Duluth's efforts toward individualization since their inception four years before. As is the case with all of Duluth's projects teachers, they were volunteers, and like most of them they are enthusiastic partisans of individualization.

As each member of the audience entered he saw before him a considerable amount of activity, a diversity of human configurations and an unusually wide range of instructional materials.

The activity included students studying alone or in small groups, students in individual conversation with teachers, students with earphones watching films and filmstrips and students moving about among the tables in search of instructional resources. The human configurations ranged from student-and book through student-and-student to students-and-teacher in small group presentations. The instructional materials, mostly ranged along the rear wall, included the standard A-V hardware plus multi-level kits, single-concept projectors and a variety of mechanical "teaching machines" in addition to the audio-visual equipment. Highly noticable even at first glance were the junction boxes which enabled several youngsters, through earphones, to monitor the same film or record without disturbing other students. The initial reaction of a typical member of the audience might be that the situation was chaotic--interesting, but chaotic.

The narrator's first task was to convey to his auditors some sense of the organizing principal underlying the seeming chaos. He began with a description of the basic tool of the Duluth approach to individualization: the six-part, written instructional objective, usually referred to as the "contract" (or SLC for student learning contract). He explained that at any given moment, every student in the classroom was pursuing the objectives set forth in such a contract, and that at any given moment any member of the teacher-team could check on each youngster's contract-assignment by consulting an index file in the rear of the room. Each contract lists the purpose of the learning experience, indicates how its fulfillment will be tested, lists the available resources and above all, describes in terms of performance what the student will be expected to do, to indicate that learning has taken place. (Section II of this chapter is devoted to a more detailed description of the six-part contract as used in Duluth.)

The narrator next called attention to the wide range of multi-level, multi-media instructional materials in the classroom. These, he pointed out, were an absolute essential, since students must have the option of selecting resources that are appropriate to their individual interests and capacities. The multiplicity of levels of material is necessary since each student must be enabled to approach the learning experience at his own level of competence, and the multiplicity of media enables each learner to select the form of informational input which he finds most spontaneously appealing, and therefore to which he is most responsive. (Section IV will explore the need for a wide range of resources in greater detail.)

The high mobility of the students, a feature readily noticed by the audience, was a consequence of the emphasis on self-selection of instructional materials and self-operation of the various media. The flexibility of grouping arrangements was a consequence of the fact that individualized instruction does not mean independent study: teacher-led presentations are the optimal approach to some subject matter, and student cooperation in the pursuit of common objectives is always encouraged. For example, a teacher-led presentation may serve as an introduction to the basic elements of a unit of study; the students then proceed individually to explore the resources available to them; a second teacher-led presentation may be the culminating activity and include the

testing situation. While one or more teachers may be simultaneously involved in group-work, at least one is always available for instructional supervision, acting as a consultant, supervisor and trouble-shooter for those students engaged in independent study.

As already indicated, the adaptability of the program to existing facilities was self-evident in the fact that the demonstration could take place in a hotel ballroom. Equally self-evident was the fact which some might have doubted were it not manifest before their eyes: children have an impressive facility for the self-operation of instructional hardware. In three days and nine demonstrations, there were no noteworthy mishaps, even though the students involved had little prior experience and on-the-spot briefing had been minimal.

Other critically-important features of the process were less visible and manifest than those listed above. In the course of interviews with the teachers the narrator was able to point out the following:

Student assignments (the contracts) are individually selected on the basis of prior achievement. For the Washington demonstration, the Duluth teachers had been given prior-performance data on the participating students. They were, of course, able to give this material only a cursory examination. But in Duluth, the assessment of student capacities through a close examination of previous test scores and achievement records is a major concern of the project teachers.

Much of this individual-student assessment takes place in the teacher-team planning sessions, which had to be described rather than demonstrated at the National Lab. But a significant portion of each teacher's work week is specifically allocated to this process. Besides giving professionals a chance to compare notes on instructional method, these team consultations focus on individual students. As a specific example of the kind of positive outcome that can result from such a session, the narrator told the audience of a student whose high aptitude in math had been amply demonstrated in preceding years. Now his performance was below expectation. In the team-planning session, the teacher responsible for language arts pointed out that the student was reading at least two-years below grade level. Nonetheless, he was consistently selecting written materials for the resources available. By guiding the student to the audio-visual resources in math and by suggesting that he use them before reviewing the same materials in written form, the math teacher achieved a demonstrable improvement in his performance in mathematics. It is also a fair assumption that this procedure was helpful to him in the language arts area, since his math reading was now a review of material he had already encountered non-verbally, and the whole experience was in the context of mathematics, an area in which he was highly motivated and had a background of success. The search for plus-values of this kind is an important characteristic of the individualizing technique, and is the principal rationale underlying another of the common denominators in all of the Duluth project schools: the locus of instructional decision-making is centered in the teacher-team planning session.

In the course of teacher-interviews during the demonstration, the audience also learned that project teachers specialize in their areas of

greatest strength to the maximum possible extent, and that they enjoy a much closer relationship with parents because progress reporting is accomplished through personal interviews with the latter. (Section V below will concentrate on the teacher's role in the individualizing process.)

Least visible or demonstrable to the audience were those goals of individualized instruction which are internalized in the student. These are concerned with self-pacing and with individual responsibility. The student cannot be expected to explain, or even to be conscious of, the fact that his self-pacing--moving as rapidly as he can or as slowly as he must--is the outcome of a personal inventory of his own abilities, needs and interests. He may not be conscious of it, but his process of personal inventory must become spontaneous if his learning experiences are to be truly individualized. He must have the confidenc to make instructional choices based on his own personal "druthers." He must come to believe that his instinctive preferences can result in the appropriate selection of resources from the variety available to him. This will only come about if he has the freedom to make his own choices--and make his own mistakes.

Ultimately, the whole individualized approach as developed in Duluth must prove itself through a manifestation that is virtually impossible to weigh, count, sift, sort or otherwise evaluate--except after the passage of a considerable span of time and the accumulation of much additional experiences. But it is an outcome to which Duluth innovators are dedicated. It is an outcome which their instructional intuition tells them is forthcoming, despite the fact that they have no standardized tests with which to evaluate it. It is an outcome which is already beginning to evidence itself as students from the initial projects move into their third or fourth year of experience with individualization.

This outcome is that the student shall assume the ultimate responsibility for his own educational destiny. It can be offered as a defining characteristic of the Duluth approach to individualization, not because the case had been proved but because the outcome is the subject of continuous and conscious emphasis--the goal of teaching the learner how to learn.

When the National Laboratory for the Advancement of Education came to a close, the Duluth contingent went home with a clearer focus on their own process. They looked backward, as we will do in Section VI, and forward as we will do in Section IX. They had a heightened awareness both of problems solved and problems unsolved, which we will summarize in Section VII. But more than anything else, they were vividly aware that their endeavors were based on a basic tool, a central idea and a prime necessity. The elements--the tool, the idea and the prime necessity--are the subjects of the sections immediately following. Then, after an attempt to characterize the new role of the teacher as a consequence of these new elements, we will describe how Duluth got where it is and speculate about where it will go from here.

APPENDIX E.--TEACHER TRAINING INSTITUTE

PROPOSAL FOR RESEARCH AND/OR RELATED ACTIVITIES SUBMITTED TO THE U.S. COMMISSIONER OF EDUCATION FOR SUPPORT THROUGH AUTHORIZATION OF THE BUREAU OF RESEARCH

Title: An Institute designed to train teachers to participate in applied research activities for assessing the effectiveness of a behavioral-based high school curriculum integrating vocational and academic components.

Applicant Organization: University of Minnesota, Duluth

Initiator:

Dr. Armas Tamminen
Professor, University of Minn., Duluth
218-728-2884

Project Director:

Sister Margaret James, O.S.B.
Coordinator of Project Criterion
College of St. Scholastica
218-728-3861

Transmitted By:

Raymond W. Darland
Provost, University of Minnesota, Duluth
218-724-8801

Duration of Activity: January 1968 - July 26, 1968

Total Federal Funds Requested: $62,070.50

Date Transmitted: January 10, 1968

II. The Abstract

Title of Project: An Institute designed to train teachers to participate in applied research activities for assessing the effectiveness of a behavioral-based high school curriculum integrating vocational and academic components.

Principal Investigator: Dr. Armas Tamminen

Contracting Agency: University of Minnesota, Duluth

Amount of Federal Funds Requested: $62,070.50

Proposed Beginning and Ending Dates: January 1968 - July 26, 1968

Proposal Summary

The purpose of this proposal is to aid in the development of Project E.S. '70 by conducting a six-weeks summer institute designed to train teachers to participate in applied research activities for assessing the effectiveness of a behavioral-based high school curriculum integrating vocational and academic components. The expected contribution to education would be that the results of the proposed institute would feed into the E.S. '70 network plan for a system analysis of high school curricular offerings. The activities of the institute would focus on the following areas relevant to the E.S. '70 Organic Curriculum: systems approach to instruction (including behavioral objectives); educational simulation; vocational instruction; group process; humanities; and techniques of evaluation.

A. Problem and Objectives

The purpose of this proposal is to aid in the development of Project E.S. '70 by conducting a six-weeks summer institute designed to train teachers to participate in applied research activities for assessing the effectiveness of behavioral-based high school curriculum integrating vocational and academic components. To accomplish this, the activities of the institute would focus on the following areas of instruction:

-- Systems Approach to Instruction (including behavioral objectives)

-- Educational Simulation

-- Group Process

-- Vocational Instruction

-- Humanities

-- Techniques of Evaluation

Systems Approach to Individualized Instruction

American education has long been attracted to the ideal of individualized instruction for all students - that is, an arrangement that makes it possible for each student to be engaged at all times in learning those things that will be of greatest benefit to himself as an individual. This ideal can never be fully realized, of course. The best that can be done is to move toward it.

Progress in this direction will depend upon relating means and ends more effectively than has heretofore been accomplished by educators. The present proposal is based on the permise that a systems approach to instruction currently offers the most promising way to work with this problem.

A systems approach requires that relevant features of the system be identified, and that their functions be shown as a set of relationships within the system. Some systems (such as those of formal schooling) have structures that are served by operations occurring within a designated framework of time. A good map of such a system should indicate a time dimension.

E.S. '70 Systems Approach

Specifically, the E.S. '70 Systems Approach is characterized by:

1. The formulation of measurable objectives and a systematic sequence of activities designed to converge on the best methods for accomplishing these objectives.
2. The development of assessment instruments to evaluate the degree to which the objectives have been achieved - and so, to validate the methods and materials produced by the program.

3. The utilization of the assessment instruments and a "field environment" for revision and improvement.

4. The utilization and integration of subject matter experts, media specialists, learning psychologists, and administrative personnel within multi-disciplinary teams for planning and instruction.

Within the areas of instruction listed earlier (systems approach, educational simulation, group processes, vocational instruction, humanities, techniques of evaluation) the six-weeks summer teacher education institute envisioned by this proposal would contribute substantially to the solution of a critical and immediate E.S. '70 problem: staff preparation. Because of the relatively unique nature of the E.S. '70 program, and the limited number of personnel in the country who have been exposed to its concepts, it become extremely important for prospective E.S. '70 teachers to receive adequate preparation so that they may perform their assigned E.S. '70 tasks efficiently and well. It is this in-service job that the proposed summer institute would attempt to accomplish.

The dimensions and procedures of the proposed institute are described in the next section.

B. Description of Activities (Procedures)

The proposed six weeks summer teacher education institute would be comprised of 51 participants* from the E.S. '70 Network, 5 institute faculty members (including the director), 4 demonstration teachers, and approximately 100 senior high school students (grades 10, 11, and 12).** The 51 participants would be drawn from the 17 school systems in the E.S. '70 Network - each system having the opportunity to enroll three of its teacher-researchers in a program designed to combine theory and practice in the following areas relevant to the Organic Curriculum:

--Systems Approach to Instruction (including behavioral objectives)
--Educational Simulation
--Vocational Instruction
--Group Process
--Humanities
--Techniques of Evaluation

* Qualified participants would be enrolled in the graduate school of the University of Minnesota, and could earn six graduate credits for successful work in the institute.

** These students would be regular summer school students of widely varying abilities who would sign up for the demonstration program an an elective, and would receive credit for a high school humanities course upon successfully completing the program.

The following institutions would assume primary responsibility for planning and conducting the institute:

--College of St. Scholastica (Duluth, Minnesota)
--University of Minnesota, Duluth
--Duluth Public Schools

Personnel from the following agencies have indicated a willingness to help in planning the institute:

--Minnesota State Department of Education
--Research and Development Council of Northeast Minnesota

The institute would be conducted during the same period of time as the 1968 secondary summer school program of the Duluth Public Schools, and Duluth's Chester Park Individualized Project facilities would be used to house both the institute and that portion of the secondary summer school program that will serve as the demonstration center for the practicum phase of the institute's activities.

(See appendix for descriptions of Duluth's individualized instruction projects.)

This arrangment would make it possible for every institute participant to develop an try out with students his own strategies and tactics for the learning and evaluation areas under study at the institute.

In-Service Work

In order to conduct successfully this kind of institute, careful planning must take place. This should begin during January, 1968, and should contain these elements:

1. The 5 institute faculty members and the 4 demonstration teachers, together with representatives from the Minnesota State Department of Education and the Research and Development Council of Northeast Minnesota, should meet one full day each month, January through May, in Duluth to plan in detail the operation of the institute.
2. The objectives of the institute should be expressed in terms of performance criteria to be achieved by the 51 institute participants.
3. Explicit provision should be made for the closest kind of coordination between the efforts of the demonstration teachers and the institute faculty members. Theory and practice should be interwoven.
4. The procedures of the institute itself should be consistent with the goal of individualized instruction.

Evaluative Techniques

Because the institute would be designed to train teachers to participate in applied research activities for assessing the effectiveness of a behavioral-based high school curriculum integrating vocational and academic components, the institute's proposed approach to evaluative techniques should be set forth:

The operation of the institute would be based on the premise that basic research in education has, in the past, offered almost nothing in the way of help to improve the processes of formal education, and that more basic research is not likely to change this ineffectual record in the discernible future. By basic research is meant those rigorously designed and statistically based experiments that aim not to solve immediate problems of a practical nature, but rather to generate quantitative general laws from which specific propositions may be deduced. Indeed, Robert L. Ebel, professor of education at Michigan State University, in a paper at a symposium on basic and applied research and public policy held at New York City on February 16, 1967, by the American Educational Research Association, has asserted that, "Some research workers define basic research negatively, but very inclusively, as any research that does not seek to help solve a current problem, that does not promise results of practical value."

The purpose of the proposed institute, on the other hand, is to promote the use of evaluative techniques that are designed specifically to help educators solve some of the day-to-day problems of teaching - and, in the present instance, to do this within the context of the E.S. '70 emphasis on a systems approach to individualized instruction based on performance objectives.

Vocational Instruction

Vocational instruction has been thought of, traditionally, as simply the training of people for certain jobs in the current labor market. A more inclusive view is now coming to the fore. The newer attitude takes into account the fact that most Americans make significant job changes three or more times during a lifetime of work, that these shifts in employment usually require a substantial amount of retraining, and that because of the rapidly evolving characteristics of the world of work the future nature of training requirements cannot be foretold with precision. Consequently, the establishment of a broad pattern of generalized skills is increasingly being perceived as vocational education's most practical response to the demands of a constantly shifting employment scene. This in no way eliminates the need for specific training for specific jobs. But it does point up the need for vocational instruction that focuses broadly on the achievement of competencies for human living in addition to the development of particular skills related to particular jobs. It is in this vast region of general instruction that the needs of all

students may be served. Taken with the kind of curricular flexibility that is then required to meet the divergent needs of youth, this is what the Organic Curriculum is all about. The exploration of this issue, with its implications for a genuinely comprehensive high school curriculum, would be undertaken by the proposed teacher institute.

Humanities

The field of the humanities is relevant to this point. Formal schooling has all too frequently been characterized by its division into separate subjects or courses taught in relative isolation, one from another. This educational fragmentation customarily produces students who, while possessing a number of bits and pieces of learning, have difficulty in perceiving connections among the various fields of human endeavor. The upshot of this state of affairs is cultural illiteracy taken in its broadest sense, and a corresponding need to re-shape instruction so that it will become more relevant to the problems of daily living. In the schools, a renewed effort to see life whole might well express itself in a humanities-oriented curriculum.

The central purpose of the humanities (when it is seen as being something more than a survey of the fine arts) is to pose, although not necessarily answer, man's most enduring question, "Who am I?" Such an undertaking requires that subject matter lines be crossed with impunity. In fact, it may be desirable to think of the entire curriculum as consisting of two major divisions: a basic skills division, and a humanities division.

Customarily, certain subjects have been taught single-mindedly as basic skills. Science, for example, has generally meant frogs and test tubes. Mathematics has been almost exclusively concerned with the manipulation of the language of numbers. All well and good, as far as this goes.

Nevertheless, both science and mathematics should occupy outposts of influence within the humanities. The compelling ways in which science as a method has re-stitched the fabric of our times must receive fundamental attention. And mathematics, insofar as automation is based upon it, must accept partial responsibility for the coming redefinition of work and leisure in our society.

In this view of the humanities, all subjects have their parts to play. This means that regardless of what the subject matter background of an institute participant might be, the humanities-oriented curriculum of both the institute and the associated classroom demonstration center would be appropriate for exploration by every participant - the special emphasis in each case being determined by each participant's personal inventory of interests.

Group Process

One of the persistent points of confusion regarding individualized

instruction has to do with the proper place of group process within such a program. It is commonly but mistakenly assumed that individualized instruction and independent study are one and the same. While it is true that independent study often plays an important role within an individualized program, the two are by no means identical. The development of skills appropriate for group situations is of vital concern to a democratic society. The scope of this development is as wide as the social processes of human living. It includes group activities of many kinds: didactic, discursive, heuristic, etc. That there is a great need for this sort of education most thoughtful observers would readily concede. Although we are involved almost daily with various types of organizational functions - committee work and the like - the traditional inefficiency that characterizes their operation leaves little doubt that there is much room for improvement. The proposed teacher institute would focus upon promising ways for improving deliberate instruction in the area of group process.

Educational Simulation

The field of educational simulation is one that holds great promise for schooling at all levels. By educational simulation is meant direct student involvement in problem-solving situations that are structured as games. In constructed settings modeled after real-life situations, students have an opportunity to try our different strategies over a period of time in order to observe the consequences of their decisions. This approach to learning appears to be particularly promising in the social studies area.

The one hundred senior high school students in the demonstration center of the proposed teacher institute will be using as their major vehicle for study in the humanities a relatively complex simulation exercise called Inter-Nation Simulation (INS). INS is a functional system consisting of the main elements of international politics. It enables students to manipulate in a simplified way some of the key factors in international relations, and it does so in a manner that permits students to formulate their own strategies for the countries involved.

Developed at Northwestern University, INS is difficult to play - its complications probably being something on the order of chess - but its capacity to engage the energies and interests of participants has been notable, and the way in which it appears able to reflect "real-life" situations is impressive. One of the outstanding features of INS is its flexibility with regard to time and place. Because the basic structure of the game consists of a series of equations, it is possible to select any group of countries for any period of history, pump into the equations the necessary data concerning these countries, and begin from there. It is anticipated that the proposed institute will take the current world-wide international situation as its starting point.

Summary

In summary, the activities of the institute would focus on: a systems approach to instruction (including behavioral objectives); vocational instruction and the humanities as these may relate broadly to competencies for human living; group process as an integral part of individualized instruction; educational simulation as a highly motivating approach to instruction; and evaluative techniques that are concerned with the problems of applied rather than basic research. The overall purpose of the institute would be to aid in the development of Project E.S. '70 by conducting a six-weeks summer institute designed to train teachers to participate in applied research activities for assessing the effectiveness of a behavioral based high school curriculum integrating vocational and academic components.

C. The Use to be Made of Findings

The results of the proposed institute would feed into the E.S. '70 network plan for a systems analysis of a portion of the high school curriculum, with each school in the network concentrating on a different part of the curriculum. The subject matter assignments of the E.S. '70 schools are as follows:

Bloomfield Hills, Michigan	Humanities
Baltimore Public Schools	Vocational
Philadelphia Public Schools	Social Studies
Quincy Public Schools	Mathematics
Monroe School District	Vocational
Portland Public Schools	Industrial Arts
Mamaroneck Public Schools	English
Atlanta Public Schools	Science
San Mateo Union High School District	Reading and Writing
Duluth Public Schools	Humanities
Boulder High School	Humanities
Willingboro Board of Education	Mathematics
Nova School	Mathematics
Mineola Public Schools	Mathematics-Vocational Integration
Edgewood Independent School District	
Breathitt County	Science
Houston Independent School District	Humanities

The work of the institute would be reflected in the use of the teacher-researchers within their home districts for helping to implement the developmental efforts of the seventeen E.S. '70 schools. Specifically, this would involve the following steps:

1. The courses taught in a particular department or subject area would be analyzed in terms of the appropriateness and currency of content or subject matter. An assessment would also be made of the lateral and vertical articulation between courses in the subject area.

2. An analysis would be made to determine what the desired behavioral changes were for the total subject offering and for the courses within the subject offering. This would be the gross abstraction of the educational goals for this portion of the curriculum.

3. Where possible and appropriate, the performance criteria for each course would be developed.

4. The performance criteria would be analyzed for contingent relationships within and across courses so that the performance criteria could be sequenced or ordered.

5. The performance criteria would then be classified into types of learning as generally described in Gagne's Conditions of Learning.

6. A fairly complete inventory of teaching materials and resources related to the subject matter would then be collected. These materials would be analyzed, reviewed, and evaluated to determine which appeared to be most appropriate for which performance criteria.

7. Specific instructional resources would be encoded with specific performance criteria in a "best fit" fashion.

8. Assessment instruments or evaluation procedures would be developed so that independent observers could reliably evaluate student progress on the performance criteria.

9. A tryout with the local teaching staff would take place, collecting student and staff reactions and measured learning progress on each of the students.

10. The instructional strategies, media, and program choices would be modified on the basis of learning data.

IV. PERSONNEL AND FACILITIES

Personnel

Institute Faculty (Full-time for Institute)

1. Sister Margaret James, O.S.B.

   Coordinator of Project Criterion, College of St. Scholastica, Duluth

   B.A. College of St. Scholastica
   M.A. University of Minnesota

   Principal, Stanbrook Hall High School, Duluth
   Associate Principal, Cathedral High School, Duluth
   Classroom Teacher, Cathedral High School, Duluth

2. Dr. Armas Tamminen

   Professor & Department Head (Psychology), University of Minnesota, Duluth
   Acting Assistant Superintendent for Pupil Personnel, Duluth Public Schools

   B.S., M.A., Ph.D. University of Minnesota

Professor, University of Minnesota, Duluth
Training Specialist, Rand Corporation, Los Angeles, Calif.
Counselor, University of Minnesota, Duluth

3. Charles L. Jenks

Director of Research & Development, Reed Union School District, Belvedere-Tiburon, California

B.A. Monmouth College
M.A. Sacramento State College

Director, Research and Development
School Psychologist
Elementary and Secondary Classroom Teacher

4. Ray Johnson

Research Associate - Vocational Education Research Project: Flexibility for Vocational Education Through Computer Scheduling, Stanford University

B.A., M.A. University of Oklahoma

Research Associate, School of Education, Stanford University
Classroom Teacher, Jefferson County, Colorado

5. George Ramos

Consultant, Special Projects, Duluth Public Schools

B.F.A. California College of Arts and Crafts

Educational Administrator, Yap District, U.S. Trust Territory
Faculty member - California College of Arts & Crafts

Demonstration Teachers (Full-time for Demonstration Center)

1. Brantly Bublitz

Classroom Teacher, East High School, Duluth Public Schools

B.S. Wisconsin State University, Superior

Classroom Teacher

2. Dale Koch

Classroom Teacher, Chester Park School, Duluth Public Schools

B.S. Concordia Teachers College
M.A. Florida State University
Classroom Teacher

3. Thomas Ogston

Classroom Teacher, Chester Park School, Duluth Public Schools

B.S. University of Minnesota, Duluth

Classroom Teacher

4. Robert Zbasnik

Counselor, Washington Jr. High School, Duluth Public Schools

B.A. University of Minnesota
B.S. University of Minnesota, Duluth

Classroom Teacher
Counselor

Consultant (10% of Time during Institute)

Thorwald Esbensen

Assistant Superintendent in Charge of Instruction, Duluth Public Schools

B.S. Oshkosh State Teachers College
M.S. University of Wisconsin

Member, Summer School Faculty, University of Minnesota, Duluth
Secondary Coordinator, Eureka, California
Educational Administrator, District of Truk, Eastern Carolines, U.S. Trust Territory of the Pacific

Facilities

The proposed institute will be housed in our new Chester Park School addition that has been specifically designed for individualized instruction. This same addition will also house the demonstration center for the one hundred senior high school students who will be enrolled in the special summer program that will be associated with the institute. Having both activities under one roof will facilitate the blending of theory and practice that we hope will characterize the operation of the institute.

The Chester Park addition contains, among other things, three teaching pods and one instructional materials center. Each pod is the size of four traditional classrooms. There are no interior walls within any pod, nor between the pods and the instructional materials center. The entire area is carpeted throughout, and the overall impression is one of large flowing spaces. Also included in the facilities are an office, a work center, an audio visual workroom, a teachers' workroom, and conference areas. Total floor space for the addition is 24,500 square feet.

APPENDIX F.--COMPARISON OF TRADITIONAL AND E.S. '70 SCHOOLS

E.S. '70

SAN MATEO CONFERENCE

SAN MATEO, CALIFORNIA

MAY 23, 1968

The following pages present material which was prepared by Dr. L. V. Rasmussen, Superintendent of Schools, Duluth, Minnesota, and members of his Staff.

They are presented to you as possible prototypes which can be expanded for publication regarding E.S. '70.

1. Comparison of What Some Critics Say of the Traditional Secondary School of Today, and What Some Educators Hope for in an E.S. '70 High School.

2. Today vs. Tomorrow: How Students Might See It.

COMPARISON OF TRADITIONAL AND

E.S. '70 SCHOOLS

TODAY VS. TOMORROW

WHAT SOME CRITICS SAY OF THE TRADITIONAL HIGH SCHOOL	MAJOR CHANGE AGENTS	WHAT SOME EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
The Student:		The Student:
--has little or no opportunity to participate in the selection of his instructional objectives.	Instructional Staff	--helps choose the instructional objectives that will be assigned to him.
--has little or no opportunity to determine the means by which instructional objectives shall be pursued.	Instructional Staff	--shares in control of the selection of the means that he will use to accomplish his instructional objectives.
--is usually not clear as to exactly what the objectives are for any given unit of study.	Network Curriculum Task Forces	--is able to state in performance terms what the objectives are for any assignment he has undertaken.
--is expected to learn mainly by listening to lectures or reading a textbook.	Local District Central Office	--has easy access to a wide range of instructional materials (films, tapes, records, books, manipulative items) that he can use to help accomplish instructional objectives.

WHAT SOME CRITICS SAY OF THE TRADITIONAL HIGH SCHOOL	MAJOR CHANGE AGENTS	WHAT SOME EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
The Student:		The Student:
--pursues learning "by the bell," which is generally a daily six or seven period schedule of classes.	Building Administrator	--within broad limits is encouraged to budget his own time, so that his learning activities are regulated more by the rhythm of his interests than they are by an arbitrary schedule of classes.
--spends almost all of his hours of formal learning within the school building itself.	State Department of Education	--spends at least half of his hours of formal learning engaged in activities that take place outside the school building itself.
--involvement with the world of work is limited to summer and part-time jobs which have little relationship to vocational goals.	State Department of Education	--has work-experience activities as an integral part of the school curriculum.
--has vocational educational offerings limited to the auto mechanics variety which are directed to those who do not have the so-called ability to plan on college or whatever.	Local District Central Office	--completes instructional objectives related to broad clusters of occupations as an integral part of his high school curriculum.

WHAT SOME CRITICS SAY OF THE TRADITIONAL HIGH SCHOOL	MAJOR CHANGE AGENTS	WHAT SOME EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
--has his academic progress assessed mostly by paper-and-pencil tests that emphasize his ability to recall or recognize bits and pieces of factual information.	Network Evaluation Task Force	--has his academic progress assessed on the basis of his ability to perform creatively in the problem solving situations.
--is enrolled in subject-matter courses that are taught in relative isolation, one from another.	Building Administrator	--is encouraged to pursue learning without regard to subject-matter boundaries, and to perceive new relationships among events.
--is expected to learn at a rate that is established by the group as a whole, rather than by his own abilities, (whether these be great or small).	Instructional Staff	--is permitted to learn at a rate that is established by his own abilities.
--takes subjects that begin in September and end in June (or at the close of a semester).	Local District Central Office	--can take up a subject or line of inquiry whenever it makes sense to do so; is not restricted by course offerings that begin and end on specific dates.

WHAT SOME CRITICS SAY OF THE TRADITIONAL HIGH SCHOOL	MAJOR CHANGE AGENTS	WHAT SOME EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
--is eligible for graduation only when he has accumulated a certain number of Carnegie Units.	State Department of Education	--is eligible for graduation whenever he can qualify for entrance into the world of work or can gain admittance to a post-high school educational institution.
--makes decisions before he starts the tenth grade as to the course of action he will pursue after high school so he can get on the right track.	Local District Central Office	--has alternative post-high school courses of action left open to him until he leaves school, makes his decision, and pursues that course of action.
--has his academic progress reported by means of letters or numbers that are generally tied to some sort of achievement curve determined by the teacher for the entire class; this means that if he is in a "bright" class he will tend to receive lower marks than he would if he accomplished the same amount of work in a "slow" class.	Local District Central Office	--has his academic progress reported by statements describing his performance capabilities under specified conditions.
--has guidance and counseling services performed almost exclusively by specially trained personnel.	State Department of Education	--has guidance and counseling services performed directly by instructional staff.

WHAT SOME CRITICS SAY OF THE TRADITIONAL HIGH SCHOOL	MAJOR CHANGE AGENTS	WHAT SOMF EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
--is discouraged from working with or helping other students unless specifically assigned to do so.	Instructional Staff	--is encouraged to work with and help other students.
--if he is one of the minority of active participants, he participates in a large variety of extra-curricular activities, most of which are unrelated to the instructional program.	Local District Central Office	--as a part of his high school program, he is required to participate in extra-curricular activities which lead to the attainment of clearly defined learning outcomes.
--may be assigned additional schoolwork as a form of punishment.	Instructional Staff	--is never assigned schoolwork as punishment.
--tends to perceive formal schooling as being simply the business of "learning the right answers."	Instructional Staff	--looks upon formal schooling as an effective and exciting way to prepare himself for the business of life-long learning.

WHAT SOME CRITICS SAY OF THE TRADITIONAL HIGH SCHOOL	MAJOR CHANGE AGENTS	WHAT SOME EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
The Teacher:		The Teacher:
--selects all, or nearly all, instructional objectives for his students; in practice, this happens almost automatically because of the teacher's close adherence to the contents of a basic textbook.	Instructional Staff	--provides opportunities for students to participate in the selection of instructional objectives.
--makes all, or nearly all, of the decisions concerning the means by which students are to accomplish the teacher's pre-determined objectives; often, this consists of having the students read the next chapter and answer the questions at the end of it.	Instructional Staff	--helps students to develop their own instructional strategies for achieving instructional objectives.
--tends to think that the good student is one who works obediently, promptly, quietly, and neatly - who responds when spoken to, and who does not question authority.	Instructional Staff	--encourages students to think independently, and to retain a healthy skepticism toward authoritative pronouncements.

WHAT SOME CRITICS SAY OF THE TRADITIONAL SCHOOL	MAJOR CHANGE AGENTS	WHAT SOME EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
--states educational objectives by means of terms such as understanding, comprehension, appreciation - none of which describe any activity or product that can be observed for the purpose of evaluation.	Network Curriculum Task Forces	--states educational objectives in terms of observable activities or products.
--is primarily an educational broadcaster; this usually takes the form of a lecture (or chalk talk, or a presentation with an overhead projector); in any case, the teacher is standing up and sending, while the class is sitting down and (he hopes) receiving.	Network Teacher Training	--conceives of himself professionally as primarily an educational trouble-shooter whose job it is to assist students to become increasingly responsible for their own learning.
--makes use of new technological advances, as instructional resources in a very limited fashion for two reasons. (1) Many kinds of equipment (computers, etc.) are not available because of cost, and (2) Teachers do not know how to operate the new hardward available.	Local District Central Office	--uses computers and other new advances in hardware as a normal part of the instructional program.

WHAT SOME CRITICS SAY OF THE TRADITIONAL HIGH SCHOOL	MAJOR CHANGE AGENTS	WHAT SOME EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
--measures out information according to the clock; by Thanksgiving it's time for turkey with the Pilgrims.	Network Teacher Training Task Force	--does not believe that in matters of scope and sequence the teacher invariably knows best; assumes that students generally have the potential for becoming effective programmers or their own learning.
--makes use of para-professionals, who have no clearly delineated functional requirements, in a limited fashion.	State Department of Education	--sees as part of the instructional team a large proportion of para-professionals who perform specified functions in the instructional program.
--believes that formal learning is most appropriately conducted within the school building itself; hence, has a feeling that "outside" experiences are somehow not as significantly educative as those that are enclosed each day by the walls of the classroom.	Network Teacher Training Task Force	--has respect for the quality of learning experiences that occur beyond the confines of the academic classroom; perceives that formal education will increasingly take place outside the school building itself.

WHAT SOME CRITICS SAY OF THE TRADITIONAL HIGH SCHOOL	MAJOR CHANGE AGENTS	WHAT SOME EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
--assumes that if a student fails to learn, it is probably the student's fault; therefore, the medicine usually prescribed for such a student is: "Try harder!"	Network Teacher Training Task Force	--realizes that when a student fails to learn it is not necessarily because the student isn't trying; looks for ways to re-arrange the instructional environment so that the student may interact with it successfully.
--conducts parent conferences only when an emergency arises and a specific problem needs solution.	Building Administrator	--holds regularly planned parent conferences throughout the student's secondary school career.
--is not tuned in to the home environment of the students that he deals with.	Local District Central Office	--carries out regularly planned home visitations so he can gain some perception of a student's life style other than that projected in school.
--normally assesses student progress by means of paper-and-pencil tests that ask for the recall or recognition of itemized facts.	Network Evaluation Task Force	--prefers to assess a student's progress by observing his ability to perform creatively in problem solving situations.

WHAT SOME CRITICS SAY OF THE TRADITIONAL HIGH SCHOOL	MAJOR CHANGE AGENTS	WHAT SOME EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
--operates with an outmoded information retrieval system which has been developed over the years with very little view to efficiency.	Local District Central Office	--operated with an efficient information retrieval system using the most up-to-date equipment available.
--knows little about what other teachers are doing in other subject-matter courses; consequently, what is done in his class generally has at best only an accidental relationship to what is happening in other instructional areas.	Building Administrator:	--works cooperatively with other teachers so that what is happening in one instructional area will have some meaningful relationship to what is going on in the others.
--is inclined to establish the same academic standard for every student in class; the group is expected to keep up and stay together; homogeneous grouping is generally looked upon with great favor.	Instructional Staff	--helps each student establish his own academic standards; recognizes that a genuinely individualized program of instruction should be able to accommodate a wide range of individual differences.

WHAT SOME CRITICS SAY OF THE TRADITIONAL HIGH SCHOOL	MAJOR CHANGE AGENTS	WHAT SOME EDUCATORS HOPE FOR IN AN E.S. '70 HIGH SCHOOL
--except for times of class discussion or group projects, perceives the necessity of having students work apart from one another, thus reducing their opportunities for cheating the instructional system.	Local District Central Office	--appreciates the value of having students work together, of helping one another; favors requiring at least one hundred hours of student service to the community.
--understands that the best way to motivate students is to get across the point that if anyone sloughs off on his responsibilities, it is very easy for the instructor to double the next assignment; and if that doesn't work: shape up or ship out.	Network Teacher Training Task Force	--understands that the best way to motivate students is to provide a responsive, moderate-risk environment, the major features of which can appeal to one or more student interests; in the deepest sense, the best way to take care of the future is to take care of the present.
--leaves the teacher-training institutions unprepared to accept the changes necessary to make school more relevant for today's students.	Network Teacher Training Task Force	--leaves the teacher-training institutions prepared to keep the school flexible so it can be responsive to a fast changing society.

APPENDIX G.--E.S. '70 PRINCIPAL'S WORKSHOP

OVERVIEW AGENDA FOR E.S. '70 Principal's Workshop - Duluth - July 21 thru August 1

This is an overview of the two week workshop being planned for this summer. There are a couple of loose ends that need to be pinned down, but enough of the following is certain to remove the tentative label.

July 21 - Monday

A.M. - Welcome and Introductions
- a. John Muldoon - Project Director
- b. John Runquist - Chairman of Duluth School Board
- c. Duluth School Superintendent

Historical Perspective of the E.S. '70 Project
- a. Dr. Leon Lessinger - Associate Commissioner for Education U.S. Office of Education

Discussion with Dr. Lessinger

P.M. - Film "High School"

Getting to know each other
- a. Dr. Charles Jung

July 22 - Tuesday

A.M. - Identifying characteristics of an E.S. '70 High School and
P.M. - establishing priorities for these characteristics
- a. Dr. Charles Jung
- b. Entire group

July 23 - Wednesday

A.M. - Each principal discusses for entire group those characteristics identified the previous day which have been or are being implemented in his school. What are they doing and how are they doing it?

P.M. - Creating Climates for Change
- a. Dr. Charles Jung - Presentation and Discussion

July 24 - Thursday

A.M. - Working out performance objectives
- a. Professor Thorwald Esbensen, Florida State University Presentation, Discussion and Writing

P.M. - Differentiated Staffing models and Achievement Motivation
- a. Professor Esbensen - Presentation and Discussion

July 25 - Friday

A.M. - Student Involvement
P.M. - a. Dr. Simon Wittes - University of Michigan
Presentation, Discussion and Exercise

July 26 and 27 - Saturday and Sunday

Informal Group Activities

July 28 - Monday

A.M. - Systems Analysis and Other Problem-solving techniques
a. Dr. Donald Miller - Director of PEP, Burlingame, Calif.
Presentation, Discussion and Working

July 29 - Tuesday

A.M. - Use of Instructional Technology
a. Albert Mayrhofer - U.S. Office of Education
Presentation and Discussion

P.M. - Begin work on local plans for local school adaptation taking into account identified characteristics, local constraints, and inputs from this workshop.
a. Dr. Jung and other resources
b. Entire Group

July 30 - Wednesday

A.M. - An Integrated Curriculum
a. Dr. Robert Morgan, Florida State University
Presentation and Discussion

P.M. - Models for Evaluation
a. Dr. James Popham, UCLA
Presentation and Discussion

July 31 - Thursday

A.M. - Support Systems for an E.S. '70 School
a. Successful Bidder on Management Contract -
Dr. Walter Foley - University of Iowa
Presentation and Discussion

P.M. - Finalize Local Plans
a. Dr. Jung and entire group

August 1 - Friday

A.M. - Critique by group of local plans

P.M. - Evaluation of Workshop
Good-by and Good Luck 71

E.S. '70 PRINCIPAL'S WORKSHOP

Name	Position	Address
Kenneth Talkovich	Assistant Principal	Duluth Central
Bob Turner	Curriculum Coordinator	Duluth Central
John Cavanaugh	Principal	Duluth Central
Walter N. Scott	Principal	West Phila. High 47th & Walnut St. Phila., Pa.
Robert A. Eaverly	Principal	Sayre Jr. High 58th & Walnut St. Phila., Pa.
Donald Soderberg	Counselor	Rt. 2, Box 19 Superior, Wis.
Raymond E. Casillas	Department Head	3827 Longridge San Antonio, Texas
Mrs. Lucille L. Santos	E.S. '70 Coordinator	6458 West Commerce San Antonio, Texas
Charles W. Mink	E.S. '70 Coordinator	650 N. Delaware St. San Mateo, Calif.
Pete Palches	Planner	650 N. Delaware St. San Mateo, Calif.
Hilton C. Lewis	Principal	Noval High School 3600 S.W. College Ave. Ft. Lauderdale, Fla.
John R. Hoback	Principal	Boulder High 1604 Arapahoe Boulder, Colorado
Maige M. Rodriquez	Principal	Memorial High 668 Overhill Dr. San Antonio, Texas
Millard Tolliver	Principal	Breathitt High Jackson, Ky.
Ruth Tolliver	Consultant	Breathitt High Jackson, Ky.

Kent B. Ackerman	Director Vocational Education	Monroe Public Schools 1275 N. Macomb St. Monroe, Michigan
Robert Christiann	Superintendent	Monroe Public Schools 1275 N. Macomb St. Monroe, Michigan
Duane M. Nielsen	Director O & A Branch	BR/USOE Washington, D.C.
John L. Sullivan	Principal	Mineola High Garden City Park, New York
Arthur L. Pace	E.S. '70 Coordinator	Houston I.S.D. 119 E. 39th St. Houston, Texas
Everett L. Knobloch	Principal	House A Mamaroneck High Boston Post Rd. Mamaroneck, N. Y.
Sister R. Whalen	Administrator	Middle School 1250 Kensington Rd. Bloomfield Hills, Michigan
Rev. Vernon Malley	Principal	Mt. Carmel High 6410 S. Dante Ave. Chicago, Ill.
William H. Reed	E.S. '70 Coordinator	Boulder High School 1604 Arapahoe Ave. Boulder, Colo.
John Muldoon	E.S. '70 Coordinator	Board of Education Duluth, Minn.
Charles Jung	Program 100 Coordinator	Northwest Regional Educational Laboratory 710 S.W. 2nd Portland, Oregon
Clarence W. Blount	Principal	Dunbar High School Caroline & McElberry St. Baltimore, Md.

Lloyd M. Creighton	Principal	Quincy High School Coddington Street Quincy, Mass.
William Hyry	Assistant Principal	East Hills Jr. High Kensington Road Bloomfield Hills, Michigan
Leo Perelman	Principal	Monroe High School 503 Washington St. Monroe, Michigan
Fayne Porter	Head, Language Arts Department	Institute of American Indian Arts Cerrillos Road Santa Fe, N.M.
Robert A. Schmidt	Principal	John F. Kennedy High Kennedy Way & Levitt Parkway Willingboro, N.J.

John Muldoon, E.S. '70 Coordinator
Duluth Public Schools
722-4731 Ext. 35

For release 6:00 A.M.,
Sunday, July 20, 1969

More than forty educators from all over the nation will assemble on Monday at the College of St. Scholastica to begin a two-week workshop for school administrators hosted by the Duluth Public Schools. The workshop, sponsored by the Project E.S. '70 (Educational System for the Seventies), is designed to aid principals and other administrators in initiating innovative educational practices in their school districts.

According to John Muldoon, E.S. '70 Coordinator for the Duluth Schools and workshop director, participants will include representatives from all 18 school districts which are E.S. '70 members. The E.S. '70 Network, initiated in 1967 with the original impetus coming from the Bureau of Research of the U.S. Office of Education, is a cooperative program designed to create a model for the American high school of the future.

"Duluth was among the charter members of E.S. '70," Muldoon stated, "and we are very gratified at having been asked to organize this workshop." He added that representatives of the U.S. Office of Education and prominent educators from several leading universities will also be participating.

Keynoter for the workshop will be Dr. Leon Lessinger, United States Associate Commissioner of Elementary and Secondary Education. Lessinger, formerly Superintendent of the San Mateo Union School District in California, has been one of the leading exponents of the E.S. '70 approach to creating new patterns for the curriculum and administration of the American high school.

For release on Tuesday, July 29, 1969 P.M.

For Further Information
Contact: John Muldoon
728-3631 Ext. 452

Two eminent educators will be speaking to the E.S. '70 Workshop for Principals being conducted by the Duluth Public Schools on the College of St. Scholastica campus on Wednesday, July 30. Dr. James Popham, Professor of Education at U.C.L.A. and Dr. Robert Morgan, Professor of Education at Florida State University. Both of these individuals are noted for their outstanding work in applying systems analysis and systems design to educational problems and they will be assisting the principals in working out some of these problems in high schools.

John Muldoon, Director of the Workshop, states that the two-week program will come to a conclusion on Friday, August 1.